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FAMILIAR LESSONS

ON

PHYSIOLOGY AND PHRENOLOGY,

FOR

CHILDREN AND YOUTH.

IN TWO VOLUMES.

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FAMILIAR LESSONS

ON

PHYSIOLOGY,

DESIGNED FOR THE USE OF

CHILDREN AND YOUTH

IN

SCHOOLS AND FAMILIES.

ILLUSTRATED BY NUMEROUS ENGRAVINGS.

BY MRS. L. N. FOWLER.

CHILDREN—OUR FUTURE MOTHERS, JUDGES, STATESMEN

VOL. I.

STEREOTYPE EDITION.

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PREFACE.

TO PARENTS AND TEACHERS:—

Children are generally ignorant of the simplest laws which relate to their bodies, and to the functions of their minds. They are sent to school it is true, but are seldom instructed in these things there; and it is too often the case that they grow to maturity with habits which undermine their health, and bring them to an early grave; which might have been avoided if they had received proper instruction in early life.

That it is *important* for children "to know themselves," mentally and physically, is self-evident to every reflecting mind, and *this* being admitted, the most direct means should be used to accomplish this object. A correct knowledge of the laws and principles of Physiology and Phrenology is undoubtedly the most effectual medium through which this light can be obtained, and should, therefore, be extensively diffused and disseminated.

The design of these two volumes, is, to present these subjects in a clear and familiar manner, to explain their general laws, to illustrate them by cuts and familiar examples, such as occur in every-day life, to impress the truths inculcated on the conscience, so that children may not only feel their importance, and that it is their duty to obey the laws of their being, but that they may also feel that they have responsibilities, from which they cannot free themselves. I have affixed questions to each page for a two-fold purpose, namely, to enable teachers and parents to ascertain how far and how much the principles have been understood by them, and also to impress these principles deeply on their minds.

As the truths of Phrenology and Physiology are fully established in other works, I have drawn my inferences and conclusions from premises which I have not deemed it necessary to prove. I have written in a colloquial style, and have studied simplicity; yet I think that in addressing children we should not always adhere strictly to this; for while they learn and repeat, when very young, long and unmeaning expressions, it is time to speak to them of words which convey *instruction* as well as *sound*.

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A child can comprehend that the petals of a flower are its leaves, and that the cuticle is the outer membrane of the first skin.

The opinion that a knowledge of the mind, its laws and functions, should, and must of necessity, be confined to the Stoic, the Philosopher, and the Sage, has prevailed too long in society. The mind of man is but a development of the elements of his nature, and these elements can be understood by children.

Said a reverend gentlemen when speaking of little children,—"Here is the replenishing of the world, here is a new wave of existence. From these little children will be selected our future rulers and judges of the next half century." Another talented and eloquent writer also said—"What a magazine of energies is a little child. How many journeys across continents, if need be, on errands of mercy, may be snugly packed away in those little feet. From between that little right thumb and finger, what volumes may yet flow out—poetry, history, philosophy, ethics, etc.!"

Parents and teachers, the minds of children are placed in your hands to mould and direct! They have, as all *must* allow, *natural* tendencies of mind, *natural* propensities, *natural* predispositions; yet they are not "*fated*" to act *only* as these dictate; but they *can* be so trained, cultivated, or restrained, that their influence is often greatly modified or entirely counterbalanced. Will you train them for usefulness and happiness; or will you suffer the tares of ignorance and vice to grow and expand in their little minds, till they eventually root out all the good? It is for *you* to say. The responsibility rests on *you*. Do not, therefore, for the love you bear your little ones—"those links between angels and men"—neglect your duty to them.

That these volumes may serve, in some degree, as a pilot to enable children to avoid the shoals and quicksands of life, is the sincere wish of their friend,

L. F. F.

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PHYSIOLOGY FOR CHILDREN.

CHAPTER I.

DIGESTION.

1. CHILDREN, I wish to converse with you for a little while, if you will be very attentive, and listen to me. You know what I mean, I suppose, by conversing? for you all talk and chatter from morning till night, frequently to the great trouble and annoyance of your friends and parents. Conversing is to talk.

2. *You* are the talkers then; generally you do all the conversing; but, at the present time, *I* wish to do most of the talking myself.

3. Did you ever hear, children, of Physiology and Phrenology?

"No," responded little Clara, "*I* never did."

Clara, do you like to be sick? Do you like to have your head and body filled with pain, and to be obliged to lie on your bed all day long?

"Oh, no," she answered quickly.

4. Well, children, when I say I will tell you what Physiology is, I mean that I shall explain to you why it is that we are sometimes sick—why it is that we can walk. I shall tell you about the bones, the teeth, the skin; what it is that makes our bodies increase in size;

What is the subject of Chapter first? 1. How do children frequently annoy their parents? 2. Who generally does the chief of the talking? 3. Is it pleasant to be sick? 4. What do we learn by means of Physiology?

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besides many other interesting things that you will be very glad to know.

5. When you purchase a toy, you are very anxious to know why it will make a noise by turning a crank, or why the little china dog will bark, or the wooden milk-maid churn. You are sometimes so inquisitive about these things, that you often pull very handsome toys to pieces to see what it is that seems to give them life and motion.

6. I am always pleased to see your desire to obtain knowledge; but children frequently ask a great many questions about things improper for them to know. I wish you to ask as many questions as you now do; but I wish you to think more about your bodies—why it is that we eat every day, and why it is that we grow; why it is that when we cut our fingers they get well again, as we say; or, in other words, that Physiology is the study of the living animal. A knowledge of these things will make you both happier and better children, and men, and women. Shall I tell you about them?

7. The sparkling of Clara's bright eyes showed that *she* was filled with anxiety to know.

"Tell us, do tell us," responded these little ones, "we will all be very silent, and try to understand what you say."

8. Well, rejoined I, one day I overheard two little boys, Charles and David, talking together. Charles said to David, "Is it not very strange that I am a larger boy than I was last year? Mother told me that if I were a good boy, and went to bed when she wished me

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5. Why do children frequently destroy their toys? 6. What kind of curiosity should be encouraged in children? 7. Can anything be learned by the expression of the eyes? 8. How did Charles account to David for his growing larger?

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to go, without crying, that I should be a man if I lived long enough. So I have gone to bed ever since, and have tried to be good, that I might grow as large as my father."

9. "No," said David, "we grow if we do not cry when we have to take medicine; for old nurse told me 'that I could never be a large man in the world' if I cried and did not take the bitter stuff she had prepared for me. She said if I *did* cry, she would smooth down my face with a hot iron; and I had half a mind to let her do it, to see if that would not make my face larger and longer. So in this way these two boys went on talking, and although they appeared very intelligent, and had attended school several years, they did not know the simple laws of their own bodies.

10. I wish all the children who hear my instructions to know that such things are foolish and untrue. I wish you to know that you have a heart, lungs, and stomach; and also to know for what purpose they were given to you, and the service they are to you. I will imagine some of your thoughts and questions, and will try to interest and instruct you.

11. You all go to the table one, two, and three times every day, and what do you do when you are there?

"Why I eat; yes, I eat just as hard and as fast as I can," says William; "and I carry something to school beside to eat if I can get it."

12. William, what do you eat for?

---

9. How did David account for *his* growing larger? Do children learn about their bodies by attending school? 10. Had Charles and David correct ideas about their growth? What thing ought all children to understand? 11. What do children do when at the table? 12. Why do children eat?

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"Why," said William, "because I am hungry, to be sure; and I can scarcely wait to come to the table."

That is right, William; but what becomes of your bread, and butter, and cheese, and apples?

William could not answer a word; but Alfred instantly replied, "My mother says, that what we eat makes us grow; but how I cannot tell."

13. Here are William, and Alfred, and Sarah, and Jane, and a great many more children, who are eating, eating all they can get, and yet they do not even think whether it does them any good or not, or in what way it benefits them.

14. But, children, our food makes blood, and our blood increases our size. Now let us examine this curious subject for a few moments, and see how it is done. You have probably been at a mill where corn, wheat, and other grain, were ground into flour and meal. For this purpose, they have large stones, which, by turning round, cut the kernels of corn, and press them very fine. We have also something prepared to grind our food.

15. We have teeth, sharp and strong, with which to chew our food, and there are also in the mouth little vessels called glands, that contain a fluid like water, which is called saliva. This moistens the food, the same as a cracker becomes soft when put into water. This saliva is called by boys and girls who do not know any better, spittle.

16. If this saliva did not exist, the mouth would soon

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12. Could William tell what became of his food? What was Alfred's reply? 13. Do children generally think why they eat? 14. Why do we eat? How and where is grain ground? 15. With what do we chew our food? What do the glands in the mouth contain? How does the saliva act? What is this saliva sometimes called? 16. Is this saliva of any use in the mouth?

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become very dry and parched. In the back part of the mouth, there are three passages: one which leads into the nose or nostril; one into the wind-pipe, through which we breathe; and the third, which is called the gullet or œsophagus, goes down into the stomach. The latter is the one through which we wish the food to pass. But how do we know that it will take the right course? for if it should pass down either of the other ways, the person would not be able to breathe, and would soon become sick, and perhaps die.

17. Listen, and I will tell you how it is prevented from going wrong. There is a little piece of flesh at the root of the tongue which moves upward and downward, called a valve or trap-door, which shuts down over the wind-pipe when we swallow, just like the cover to a book or box, and fits so nicely that the food passes along down the throat, until it reaches the stomach.

18. The following cut represents the stomach, which is shaped like a bag, and usually contains about two or three pints in an adult or full-grown person. It is capable of being contracted or extended, as the case may require. The letter C is the tube through which the food passes, called the cardiac orifice. The letter P shows the outward passage, which is called the pylorus or "door-keeper," as it prevents the food from passing out until it is properly digested, and also prevents it from returning after it has been sent out. I shall give you only a few hard names, and these I wish you to remember.

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16. What passages are in the back part of the mouth? Through which does the food pass? What would be the consequence if it should take either of the other passages? 17. How is it prevented from taking a wrong course? 18. Describe the stomach. How much does it usually contain?

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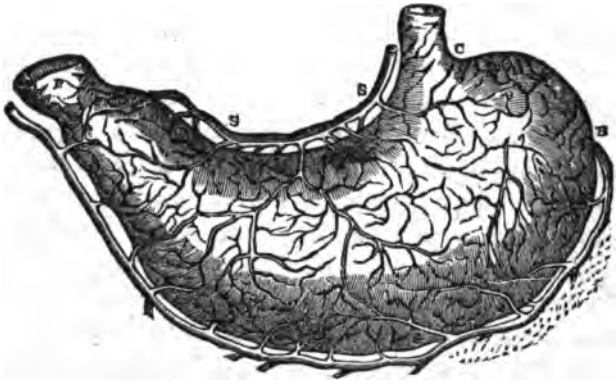
19. The stomach is situated on the left side of the body, under the ribs, and has three coats or coverings. The stomach has also a fluid resembling that in the mouth, called the gastric juice, which mixes with the outside portion of the food, making it into a soft substance called chyme. All the water that we drink is



THE STOMACH.

taken up by the veins of the stomach, and is absorbed in about three minutes. It is for this reason, that, when a person has fasted, or has not taken food for some length of time, he derives nourishment quicker from drinking than from eating, because the water is soon sent all over his body. Many ignorant persons suppose that there is one passage to the stomach for all the water which we drink, and another for all the food which we eat.

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19. Where is the stomach situated? What fluid does the stomach contain? How is chyme made? What becomes of the water which we drink? Why does a person derive nourishment from water quicker than from food? What idea do many persons have in reference to eating and drinking?

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20. Dr. Wieting, an interesting lecturer on Physiology, tells an amusing story of an ignorant Irishman, who began to think about eating and drinking, but who, becoming puzzled, went to a physician, and asked him whether indeed there were two passages to the stomach, one for the solids and the other for liquids. The doctor replied that there was only one.

"Well," said he, "I thought they must be wide awake down there to separate the puddin' from the milk when I ate them."

21. If the nerves that lead from the stomach to the brain were cut off, the sensations of hunger and thirst which we all feel, would be destroyed. After the chyme has been formed, it passes out of the stomach through the pylorus into the duodenum, or second stomach, as it is sometimes called, which is the upper part of the intestines. As soon as one portion of the food is sent out of the stomach, another portion is formed into chyme, and so on, till all has been mixed with the gastric juice, which soon takes place, unless we have eaten too much food, or that of an improper kind.

22. The chyme which is prevented from returning to the stomach by a little valve in the pylorus, is now mixed with the bile that is secreted by the liver, which lies at the right side of the stomach, and a juice called the pancreatic, which comes from the pancreas, situated near the stomach. These two fluids convert it into a white fluid called chyle. It now travels along over the

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20. Relate the anecdote of the Irishman. 21. What effect have the nerves on the stomach? How is the whole of the food converted into chyme? What prevents the return of the chyme to the stomach? Where are the liver and the pancreas situated? How is chyle made? Over what does the chyle pass?

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whole internal surface of the intestines, which are six times the length of the body, but are folded in so compact a manner that they occupy but a small space.

23. As the chyle is passing, that part of it which will make good blood, or is fit for the growth and nourishment of the body, is taken up by thousands of little tubes, called lacteals—because the fluid is white—also called capillary vessels—because the Latin word capilla means a hair—and these tubes are as small as a hair. It travels along through these tubes in the same manner that the particles of oil travel along through the little tubes in the wick of a lamp, till they unite in larger tubes.

24. These terminate in glands, from which larger tubes or pipes collect and carry the chyle from all parts into one common vessel, called the receptacle or thoracic duct, which holds about a table spoonful. From this bag a large pipe proceeds, which runs up the back part of the chest, and along till it reaches the neck at the top of the left shoulder.

25. It is now poured into a large vein called the subclavian vein, which carries the chyle, together with the old blood coming from the veins, situated all over the body, to the heart, the great fountain of life. The blood, now formed, runs along, being of a dark color, but which is not yet healthy, to the lungs. Here the air we inhale or breathe in, changes the dark color of the blood to red, as we see it when we prick our fingers.

26. Then it flows back to the heart, and by a con-

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23. What are the lacteals, and what is their office? In what manner does the chyle pass through them? 24. Explain the further passage of the chyle. 25. How does the chyle and old blood finally reach the heart? Where does this blood run, and what change takes place in it?

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traction of the muscles of the heart, it is thrown into tubes, called arteries, with sufficient force and rapidity to carry it to all parts of the body.

27. The blood contains the elements of all those substances which compose our body. It is the blood which makes our bones, our skin, our hair, and every limb; and it is the blood which makes us grow. So you see if we did not eat, we should not have any blood, and so of course we could not grow.

28. You may think it very strange that the red blood flowing like the water in a river, can make something as hard as a bone or flesh. But when you cut your finger, or break a bone, the reason why, after several days or weeks, it heals or becomes well, is, that the blood, in passing the place cut, leaves a little something there; the next time it leaves again a little substance; when, by and by, it becomes flesh and skin.

29. When a bone is broken, just the same process goes on, only the substance left is a little harder till a piece of bone is formed. Should you hurt your finger-nail so that it peeled off, you would find that gradually a new nail would grow, but if you should eat very sparingly for two or three months, you would not see this growth.

30. Different kinds of food make different quantities of chyle and different kinds of blood. Animal substances make more chyle than vegetable; hence, if we lived altogether on meat and animal food, we should not require so much in quantity.

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26. What is said of the blood after it flows back to the heart? 27. What does the blood contain? 28. Explain in what manner the finger heals when cut? 29. Explain in what manner the bone unites when it is broken? 30. On what does the quality of the blood depend?

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31. Men, women, and children eat a great many kinds of food which are very injurious. Some people drink rum, wine, and other ardent spirits, although they are sensible that these only heat the body, do them great injury, and render them more stupid than the beasts who have no reason to guide them. They make no blood at all, but burn the stomach till it is all consumed. Tea and coffee make poor blood; so do all kinds of spices and rich gravies.

32. In the mill I spoke of, supposing those who had the care of it should throw in corn all day, without stopping to see whether the mill was full or not, do you not suppose they would soon get the mill out of order, so that they could not use it at all? But our stomachs are much more delicate, and more easily injured by our eating too fast, too much, and too often, than the mill.

33. When Nature does anything, she is governed by regular rules and fixed laws, and is systematic in all her arrangements. She does one thing at a time, and is only capable of doing a certain amount, and no more, without injuring some other part or function of the body.

34. Suppose I should listen to the talking of the stomach, what do you think it would tell me? I will imagine it to be William's stomach. As soon as he awoke in the morning, and was dressed, he teased his mother for something to eat, for he was very hungry; his mother, to get rid of his importunities, said, "Yes," and gave him a large slice of bread and butter. By and by, in the course of a few moments, the stomach heard

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31. What are some of the things that make poor blood? 32 How could a mill be injured? How are our stomachs injured? 33. What are the operations of nature? 34. Explain what the stomach of William said?

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the bread and butter knocking for entrance; so she took it and says, "This will make some nice blood, only it would have been better for my little master if there had not been quite so much butter."

35. So the stomach went on with her work to make it very fine, and get it ready to send to the heart; but before it could quite send it all out, William's mother had prepared his breakfast, and there was another tap at the door: "Let me come in," said some bread and butter; "and me too," says some coffee; "and me also," said a large piece of mince-pie; all of which had been swallowed, half chewed, almost as quick as I can speak, or you can read or hear.

36. "Well," said the accommodating stomach, "I will do all I can for you; but if you had waited an hour, or my master had ground you with his teeth, I could have done better;" but she went to work pushing, and tugging, and throwing her sides together, to get the contents all digested, as it is called, or thoroughly dissolved by that gastric juice which I told you was in the stomach.

37. She almost gave up the undertaking, but she tried again, and finally succeeded in making the chyme. "There," said the stomach, "go; but I am afraid my little master's cheeks will not appear as rosy and bright; for that mince-pie will steal away some of the color from the blood which goes to his cheeks; I really hope that my poor sides will be able to take a little rest.

38. "Little Willy will have to go to school, and will not be able to get any more food till noon." If Mrs. Stomach could have looked into her master's pockets,

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35. What did she do with his bread and butter? 36. How did the stomach succeed with her task? 37. How did the stomach console herself?

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she would have groaned most pitifully, and have had just cause for complaint; for he did not wish to go to school that day, and his mother, to pacify him, and make him willing to go, gave him some candy, and some chestnuts, and that large red apple which he had wished for a long time.

39. As soon as the little fellow had wiped away his tears, he started off to school. Recess came. He then put his hand into his pocket for his apple, which he nibbled, and nibbled, till it was all gone; then came his candy, which he thought was very good. "Ah!" sighed his stomach, "what shall I do? I cannot possibly get rid of all this apple, and candy, and so I must let it remain here, till I take a nap to rest me;" but she could not sleep much, for the chestnuts came rattling down, one after another, and asked admittance.

40. Soon school was done, and William ran home; but for some cause he did not feel as happy and comfortable as he did in the morning. *He* said it was because he had been compelled to go to school, and could not play at home

In a short time dinner came on to the table, and William of course took his seat by the side of his father.

41. He must eat because he generally does: so away goes a slice of beef, then some potato, and a great many other things, into his stomach; but she had not sent away all his apples and nuts—so she could not help grumbling and getting out of patience, and declared that she *would not* take anything else.

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38. What would the stomach have seen could she have looked into Willy's pocket? 39. What did she do with his apples, etc.? 40. What were William's feelings, and to what did he attribute them? 41. What took place at the table?

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42. This made William feel so uncomfortable that he could not hold his head up, but had to go and lie down on the bed. When his mother went to him he was so hot and feverish, that she sent for the doctor to come and see her poor boy, and said she was sorry that she urged him to go to school; for now he was sick. She did not once think that her sympathy should extend to his poor stomach, which she had assisted in so unmercifully stuffing, and which in return had caused her little William's sickness.

43. The doctor came, and at once told her what the matter was with the boy. *He* took pity on the stomach, and gave the boy some medicine, which caused him to throw up what was not needed, and what could not be properly digested; and said he must take only light nourishment for several days.

44. As I was talking thus, William, who sat by my side, blushed and seemed confused, as if he had done something wrong. Said he, "How did you hear *my* stomach speak the other day? It is very wonderful; but I will not make it feel so bad again."

45. Children, you know that the stomach cannot *talk* or *think*, although it can *feel;* but this is what it *would* say a great many times if it *could;* and I merely supposed this circumstance, to teach you the following important lessons, which you must not forget:

1. That you must not eat in haste.
2. That you must chew your food fine.
3. That you must not eat after your regular meals.

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42. To whom did Willy's mother's sympathy extend? 43. What was the doctor's prescription? 44. What effect did this story have on William? 45. Can the stomach talk? What can it do? What five important lessons should be remembered?

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4. That water and simple food are better for the blood than tea, coffee, and all kinds of spices and rich food.

5. That you must eat all your candy, apples, and nuts when at the table; for the stomach cannot digest your food properly under four or five hours, any more than a boy could learn his lesson if his playmate should disturb him, or in any way attract his attention while he was studying.

46. Remember, children, that our stomach is one of the most industrious and important organs in our whole bodies. If this be affected, our whole bodies are affected. We may injure our arm, and still be able to walk, to think, and talk; the same may be true with regard to a leg or foot; but if the stomach be sick, we can neither walk, run, nor use our limbs, and sometimes cannot even think. It is always performing its duties faithfully, whether we are eating, sleeping, or walking.

47. Let us, then, treat this organ with the regard and respect it deserves; let us be careful to eat nothing that shall have a tendency to injure us, or make us sick and unhappy; for, without health, our comfort and enjoyment are both shortened or destroyed in a great degree. Is it right when physicians tell us that only one drop of the oil of tobacco, put on the tongue of a dog, will kill him in three minutes, to learn to *love* to eat the noxious weed in a milder form? You must *never learn* to chew, or smoke, or take snuff. You have not habits formed now, and I do hope that no bright-eyed little boy will be so disrespectful to his stomach as to introduce

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46. What effect does the sickness of stomach have on the other organs? 47. How should we treat our stomachs? What habits should children never learn? What is one great reason that tobacco should not be used?

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to her acquaintance this filthy weed; for those who use it are daily losing that saliva which ought to be saved for the mastication of their food.

48. Man has only one stomach, and this is all he needs in the digestion of his food, and in preparing it for blood; but we see that different animals require and have different stomachs: some two, three, or four, as the occasion may require.

49. Lobsters and crabs have a very singular stomach. Near the lower end of it there are five little teeth placed on the opposite side; and these being moved up and down by muscles belonging to them, grind the food passed between them, which then goes out at the orifice or opening, into the intestines.

Some birds have two stomachs. The camel, ox, and other animals of that class, have four stomachs; they usually feed on grass and other vegetables, which they slightly chew, and it is carried into the paunch or first stomach; it here undergoes but little change, when it is sent into the second, which is arranged like little cells, having little divisions or partitions between them.

50. Here the food is divided into little rolls, which are carried to the mouth to be masticated; after which, they are then swallowed, and pass into the third stomach; this has long folds or membranes, where another change is affected, when it passes into the fourth stomach, where the principal work of digestion is carried on, and where the gastric juice flows to act on the food. The food is formed into chyme in the fourth

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48. How many stomachs has man? 49. Describe the stomach of a crab or lobster? How many stomachs have some birds? How many stomachs has the camel? 49–50. How is their chyme made?

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stomach, and this process goes on till all the food has been brought in contact with the gastric juice.

51. Remember, when you hear about animals "*chewing their cud*," it is the food which has been swallowed once, and is sent up into the mouth from the second stomach. These animals are called ruminating animals. In the stomach of camels the number of cells is great; and they are very large, capable of holding a quantity of water, which he can force up into his mouth as often as necessary. The camel can travel many days over the sandy desert, where there are no wells of water, on account of this provision that nature has given to him to supply himself before he sets out on a journey.

52. In plants, nourishment is absorbed from the earth by the roots, or from the air by the leaves, which serve as lungs to them. But I must pass to another part of this subject, and will give you a few ideas on digestion.

53. By this, is meant the dissolving or changing of the food after it has been chewed or masticated. All agree that this process goes on in the stomach, but there were formerly a great many different opinions as to the manner in which it was effected.

54. The opinion that is now received, is, that the stomach secretes a gastric juice, which acts on the food, and dissolves it into chyme; which is easily done, if the food has been chewed or masticated sufficiently. When food enters the stomach, the gastric juice flows to every part of it; but if we overload this organ, it

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50. Which stomach contains the gastric juice? 51. What is meant by "chewing the cud?" What are those animals called that "chew their cud?" How is the camel enabled to travel in the deserts? 52. How are plants nourished? 53. What is digestion? 54. What opinion is now received concerning it?

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loses its power of producing the fluid, which differs in different animals, according as they differ in their food. The organs of digestion differ in different animals that live on different kinds of food.

55. If you regard these simple rules I have given to you, you will not have as many pains and aches, and will be far happier than if you neglect them.

I will next tell you about the bones, the skin, and perhaps the lungs and heart, if I find your interest continues.

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54. Is the gastric juice always the same? Are the organs of digestion always the same? 55. What good will result from a due regard to the rules laid down in this lesson?

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CHAPTER II.

BONES.

1. Children, can you tell me to-day what it is that supports our bodies? You know houses have large timbers, called frames. What is the frame-work of the houses in which you and I live—that is, our bodies? "That is what I never thought of," said Mary. "Will you please to tell us?" said another.

2. It is our *Bones*, children. These are all joined together, and make what is called a skeleton. Here are two cuts, one representing the bones of the Masto-

THE MASTODON.

don, on a small scale. They were dug out of a large clay-pit in Orange co., N. Y., and are the remains of one of the largest animals in the world. It is so tall that a man, standing by its side, cannot reach the head with

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What is the subject of chapter second? 1. What have we in our bodies which correspond to the timbers in a house? 2. What is a skeleton? What do the cuts represent?

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his cane. The other shows our bones, as they would appear without skin and flesh, and is called the human skeleton, which is the one we shall consider at the present time.

SKELETON OF A MAN.

3. I must first tell you that there are two great divis-

2. To which will our attention be confined? 3. In what two great classes are all animals divided?

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ions of animals called vertebral and invertebral, which you must all remember.

All animals are called *vertebral* which have a skeleton, and are sustained and nourished by red blood. They are also called warm-blooded, because they have heat in their bodies. Man, birds, fish, and quadrupeds belong to this class.

4. By *quadrupeds*, I mean all those animals that walk on *four* feet, as the cow, sheep, horse, etc. Man is called a *biped*, because he walks on *two* feet only.

5. All animals are called *invertebral* which have no skeleton, and have white blood, as worms, insects, shellfish, toads, frogs, and serpents. These feel cold when we touch them, and are called cold-blooded animals.

6. Our skeleton not only serves as a support, but also enables us to perform all our motions. In this view, we divide bones into two kinds—those which protect the body, and those which enable us to move. If the bones were all in one piece, every step we take would jar our whole bodies; and we should be in danger of breaking and injuring the bone every time we moved. In the top of the skeleton we see the bones of the head, called the cranium or skull.

7. This is composed of eight small bones, all very nicely fitted and dovetailed together, like the sides of a box. The places where the bones join are called

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3. What is meant by *vertebral*? Why are they called warm-blooded? What are some of the animals that belong to this class? 4. What is meant by quadrupeds? What is a biped? 5. What is meant by *invertebral*? Why are they called cold-blooded? 6. What are the uses of our skeleton? What two different kinds of bones are there? What would be the consequence if the bones of the body were joined in one piece? What is the skull, and where is it situated? 7. How many bones compose the skull? How are these bones arranged? What are sutures?

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sutures. In the little infant, the bones are soft and do not unite until it is several *months*, and sometimes several *years* old. You will see what a wise provision this is; for small children are continually tumbling, and if these bones were not soft and yielding, they would soon be very much injured.

HUMAN SKULL.

8. Being of an oval shape, it does not feel the force of blows so much as it would if it had any other shape. As the child becomes older, the bones are firmer and stronger, and give more support.

The skull contains the brain, which I may tell you about at some future time. It is very important that it should be guarded and well taken care of, as we find it is by its hard and firm covering.

9. There are several bones which form the face. The principal ones are the jaw bones, and those around the organs of seeing, smelling, tasting. As I told you

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7. What wise provisions do we find in the construction of these bones in children? 8. What good results from its shape? How does age affect the bones? What does the skull contain? How important is the brain? 9. What are the bones of the face? What is the use of the teeth?

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in my previous lesson, we have teeth prepared for us to grind or masticate our food.

10. Some of you may think that the teeth are not worthy of our notice; but be very patient, and hear me. They are of as much service, and bear as important a relation to our bodies as any part of our framework; and they are as different in different animals, as the food on which they live. They are composed of bone covered with a very hard substance called *enamel.* When this decays, or is injured, the tooth is useless for strength.

11. This is sometimes destroyed when the dentist cleans the teeth, by his instruments or acids, which he uses. When the enamel is gone, the beauty and polish of the teeth are gone. The teeth are furnished with little nerves, thought by some to make our food pleasant to our taste.

Sometimes a tooth begins to decay, so that the nerve is exposed to the air, and then we experience acute pain. So tender is the nerve, that if it should be touched by an instrument or pin we could not endure the pain for half an hour. It is not the bone which aches when we say our tooth aches, but this little nerve which troubles us.

12. This nerve is covered by the enamel, and it is this which preserves the tooth sometimes for a hundred years, and even for thousands of years, as in the case of—mummies bodies which have been embalmed, or

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10. How do some regard the teeth? How should they regard them? Do they differ in different animals? Of what are they composed? How important is this enamel? 11. In what manner is it sometimes injured? What are the results of its decay? With what are the teeth furnished, and for what purpose? What occasions the tooth-ache? 12. How is the nerve protected? How durable is the enamel? What are mummies?

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preserved from decay by being washed all over with spices and various substances.

13. Let us examine some of the different kinds of teeth, and see how well they are adapted to the food necessary for different kinds of animals, and different periods in the life of man.

14. Infants live on milk, and need no other nourishment—so they have no teeth. As they become older, their bodies enlarge, and they need firmer bones to support them, and also require more solid food; but their soft gums cannot masticate or chew their bread, and apples, etc. So what do we see? The gums seem to enlarge, and what before was like jelly, makes its appearance, and the little infant has a tooth.

15. You, who have little brothers and sisters, know with what joy the first tooth is welcomed. "Why, baby has a tooth," cries the little prattler; but ah! she does not stop to think for what purpose it was given to her! Then one tooth after another grows, but these you know are only what is called the first set. If we could look inside of the gums we should see the little roots of another set.

16. The first teeth gradually fall out within five or six years, and then the other set enlarges and appears, to last us through life, if we will only take care of them There have been several instances where the third set grew after the person was forty or fifty years of age.

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13. To what are the different kinds of teeth adapted? 14. Why have small infants no teeth? When does a tooth make its appearance? 15. How is the first tooth generally welcomed? How many sets are there? 16 How long does the first set generally last? What takes the place of the first set? How long will the second set last if we take care of them?

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this little bulb; others, that it passes through the little tube in each hair. Sometimes the root decays, and then again the skin becomes diseased. In either case the hair falls off, and is dead, or has no life.

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15. Has the hair any nerves? Where is its coloring matter? When does the hair fall off?

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and it was his custom to give them to his dog to devour when they were caught.

24. One day a little mink found its way into the trap, and as usual was consigned to the dog. As the dog opened his mouth to seize the mink, the little animal stuck his sharp teeth through his tongue, and in spite of all the beatings and endeavors of the boys and men to get him away, they were unable to do so till they killed him; and then they were obliged to pry open his teeth. The poor dog could do nothing but stand still, so sudden and unexpected was the attack of the mink.

25. Some animals have no teeth, as hens and fowls, but they have a gizzard where their food is ground after they have swallowed it, which answers the place of a stomach and teeth.

Those creatures called the ant-eaters are destitute of teeth, but have a long slender tongue, which they thrust into the habitations of ants, and then draw it back covered with these little animals, which adhere to it on account of the thick saliva with which it is covered.

26. Wood-peckers have a long straight beak, fitted for piercing and splitting open the barks of trees; also a long slender tongue, covered toward the end with sharp bristles, which are turned backward, and covered with thick saliva; by which means they are enabled to get worms on which to feed. Serpents have sharp teeth bent backward.

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24. Relate an anecdote of a mink. 25. What animals have no teeth, and with what are they supplied? What is said of the ant-eaters? 26. What peculiarity is there in the wood-pecker? How are the teeth of serpents constructed?

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27. Some are venomous and dangerous, and others do no injury, or scarcely ever bite at all. The venomous are armed with fangs, for infusing poison into wounds. These fangs are situated at the root of the teeth, in the upper jaw, and contain a little poisonous fluid, which is secreted by a gland under the eye, and which passes down to the fang by a little canal. When the tooth pierces the flesh, a portion of the fluid also enters the wound, and unless removed immediately, circulates by the blood throughout the system, and causes death.

28. When the fangs are broken or injured, they are renewed or grow again, and when not in use, are hidden from our sight by the gum. Those who tame snakes and play with them, generally remove the fangs, and keep them without water, which renders them comparatively harmless; yet they are dangerous playthings. If we had time, this would be a very interesting subject to pursue farther, but we must proceed to other bones of the body.

29. As we leave the teeth, the next principal bone which we see is the back-bone or spine. I have heard many ludicrous questions asked by larger children than any of you. Yes, even men and women have wished to know if they had some spine in their back-bone. This question showed their ignorance, for they should have known that the spine and the back-bone were the same thing.

30. The spine is not one straight bone, as many sup-

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27. With what are venomous serpents armed? Describe these fangs. 28. Are the fangs ever renewed? How are snakes tamed and rendered harmless? 29. What important bone will be next described? What mistake have persons frequently made in regard to the spine?

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pose, running down the back, but it is composed of twenty-four pieces of bone. Each of these pieces is called a vertebra. These are joined by a soft *elastic*—which means, when anything is bent or stretched, and the force which was used is removed, returns to its first shape—substance, called cartilage, which enables us to bend our back. These vertebræ are hollow, and contain the spinal nerve or marrow, and serve as a pillar or column for the support of our bodies. They increase in size from the neck down. When a person breaks his back, as it is usually called, these cartilages are broken, which can never be joined again. When the spine is diseased, the person rarely enjoys health afterward.

31. As people become older they are shorter; and men who stand and write for any length of time also become shorter, because the ligaments of the spine press down upon each other. The skull is united to the upper vertebræ by means of a joint.

32. Here we see what a wise provision is made for our ease and motion; for if our spines had been attached to our heads, so that we could not move them, how stiff would have been our bodies; and had our limbs also been firmly joined, we should have fallen every step we moved; but we have what is called the hinge-joint, to enable us to move the head upward and downward, and what is called the ball-and-socket-joint, by means of which we can turn our head in every direction, and enjoy much more than if it was arranged otherwise.

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30. Of what is the spine composed? What is a vertebra? How are the vertebræ joined? What do the vertebræ contain? What do we mean when we say the back is broken? Do persons recover from a disease of the spine? 31. Why do people become shorter who stand for any length of time? How is the skull united to the upper vertebræ? 32. What advantage are the hinge-joint and the ball-and-socket joints?

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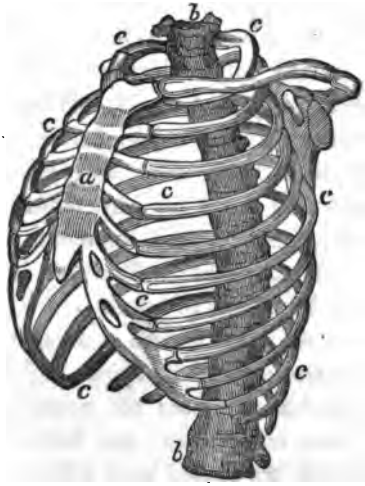
38. In all the joints, the ends of the bones which work together are tipped with gristle, that they may move easily. The spinal marrow passes through the spine, and if this be once broken, the limbs below would become numb and motionless, and life would soon end. There is an innumerable number of nerves passing from this spinal cord to the stomach, to the heart, the liver, and to every part of the body.



RIBS AND BREAST-BONE

Joined to the spine *b*, *b*, are twelve ribs on each side, seven of which are united to the sternum or breast-bone *a* in front, that is composed of three small pieces of bone, which, although distinct at first, finally unite together, making one bone. These are called the true ribs: then

33. With what are the bones tipped, and why? What takes place if the spinal marrow is injured or broken? How is the spinal marrow connected with the stomach, heart, and lungs, etc.? How many ribs are there? Describe the sternum? What are the true ribs?

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there are five which unite with the breast-bone by means of soft cartilages.

34. The collar-bone and shoulder-blade are also united to the breast-bone, and serve their purpose, the one forming the neck, the other the shoulder. The ribs are very important bones, for they enclose all those organs which give us life, and sustain it, as the lungs, heart, etc. So important are they, that we should be careful not to draw our clothing so tight around them that they will press upon these organs, for the ribs are softer than the teeth, and have also that substance called ligament—the same as in different parts of the spine—at the end, and they yield to any pressure upon them which sometimes causes death.

35. In a great many instances, where persons have been supposed to die with consumption, on examining their bodies after death, it was found that they had pressed their ribs so closely together that they had not power to breathe. In one instance which I have known, the lower ribs were closed over each other, so that the stomach could not digest the food, nor the heart circulate the blood, nor the lungs take in air. The action of all the internal organs was interrupted, which caused death.

36. We find a great many joints in the body, and in those situations where they are most needed. The arm is joined to the shoulder-blade in such a way that it can turn around; at the elbow there is a hinge-joint, to move

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34. For what purpose are the collar-bone and the shoulder-blade? Why are the ribs important bones? What care should we take of them? 35. Is death ever caused by pressure on the ribs? Explain why this is the case. 36. Is there any system in the arrangement of the joints? What difference is there between the one at the shoulder and at the elbow?

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it upward and downward. Some have supposed that the hinge on the door was first thought of by seeing it at the elbow. Then we find another at the wrist, also in all the fingers. There are twenty-seven bones in the hand and wrist. We might have had hands to move, made of only one solid piece of bone.

37. In this way we could not have used them for one half or three-quarters of the purposes we now can. We could not write to our friends; we could not raise our food to our mouths; the mechanic could not use his tools, however perfect they were; the lady could not play on her piano; the mother could not knit her stockings; the little girl could not sew and make her doll-baby's dresses; the little boy could not make his kite, nor spin his top, nor play with his marbles.

38. Every one would immediately say how inconvenient this would be. There is one man without arms who can do almost anything he undertakes; yet there is not another one to be found in the United States, or in the whole world. We could not move our limbs, our feet, or our toes, without joints. Think how awkward all our movements would be if our limbs were immovable, or were composed of solid bone. We should be confined to one spot, and could not walk or move.

39. What a world this would be, if its people were jointless, and what a blessed thing it is that we are furnished with these instruments! *Man* is the only

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36. Is there anything in a house that resembles the hinge-joint at the elbow? How many bones are there in the hand and wrist? 37. What advantages arise from the great number of these bones? 38. Is there any instance where the other limbs have been substituted for the hands? What would be the consequence if we were jointless? 39. What distinction is there between man and other animals? What places man above monkeys?

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animal that has *hands*, though the *forefeet* of monkeys *resemble* our hands, as they have nails like those on our fingers, and they can also use their feet very handily; but they have no intellect.

The *foot* is also remarkably constructed with its twenty-six little bones, connected with little joints, so that we can move very easily. If we look on the sole or bottom of the foot, we shall see that the middle of it appears as if arched or cut out. This enables us to walk more easily and gracefully, to run, skip, and jump, and to perform every motion we wish.

40. On examining the feet of different animals, we find that they are fitted or adapted to their peculiar wants and necessities, and to their character, food, and manner of life. The feet of apes and monkeys are constructed so as to enable them to climb trees; and in their native state, they live among the trees, and are continually climbing and hanging on the branches.

41. The mole lives in the earth, builds her house under the ground, and rears her young there; and they can dig through grass, and even hard gravelly earth, with their feet. The fore-feet of the goat, sheep, ox, and camel, have hoofs, which are double; but they have the appearance of a single one cut in two, and are called cloven. The camel has large, and what *we* should term, homely feet, but these are to support and move a large and unwieldy body, and to travel over the deserts of sand.

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39. How many bones has the foot? How are they connected? Is there any peculiar arrangement to the sole of the foot? What advantage is it? 40. To what are the feet of different animals adapted? How are the feet of monkeys and apes constructed? 41. How does the mole use her feet? What can you say of the fore-feet of goats and sheep Describe the feet of the camel. How are they adapted to his wants?

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42. The lion and tiger feed on other wild beasts, and tear their prey in pieces. So they have strong fore-paws—strong enough to tear a man's shoulder from his body, and sharp claws on their feet to assist them. Birds of prey, or those birds that feed on other birds, as the kite, the eagle, etc., have crooked and powerful talons or claws, to enable them to seize other birds.

43. The whale is furnished with fins, called oars, instead of fore-feet, which are supported by bones similar to the fore-feet of quadrupeds. They have no hind-feet, but have a thick tail, which has a fin or oar. By means of these fins they sail with great rapidity through the water, and can strike a boat or ship with such force with their tail as to cut it into pieces.

44. The parrot, wood-pecker, and others of that class, have the outward toe on each side turned backward, which enables them to grasp substances more firmly with their claws, and affords them a sure support in climbing. They can cling with great force to the rough bark and branches of the trees.

45. Then there is another class of birds—the goose, duck, pelican, etc., which are called web-footed, because their toes are connected by a web or membrane which fits them for swimming.

46. Their legs are situated far back on their bodies; their feathers are thick, smooth, and oily; their skin under their bodies is covered by a layer of close down,

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42. How are the feet of the lion and tiger adapted to their necessities? With what kind of feet are the birds of prey furnished? 43. What serves the whale instead of feet? What enables them to sail in the water? How strong is their tail? 44. What enables the parrot and wood-pecker to climb and support themselves? 45. What are web-footed birds? For what does this construction fit them? 46. How are their legs situated? By what is the skin underneath their bodies covered?

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which prevents them from coming in contact with the water; they have long necks, so that they are enabled to procure their food from the bottom of the water without difficulty. When you see the swan gliding so prettily over the water, think how well adapted she is for her situation!

47. There is one bird, the pelican, that has a bag or pouch in its bill to hold the fishes and worms till it has need for them.

48. The principal bones of some animals are on the outside of the body, and serve as a covering or protection to the other parts, as in the lobster. Lobsters belong to the class of invertebral animals, and have no skeleton or internal bones; but they are covered by a thick shell, which serves them for two purposes—it is a shelter for all the softer parts of the body, and is the instrument of motion.

49. *We* have bones fitted and joined to enable us to move; but the *lobster* has not. Instead of them he has a thick shell on his back. This keeps him warm, and prevents his exposure to the rain and the cold; it is a nice and snug house in which he may repose in peace and quietude. You would probably ask if this shell grows in the same manner that our bones increase in size.

50. This shell is incapable of growth. As the animal increases in size, he throws off his old shell to change it for another. When this is cast aside, his soft body is

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46. What advantage is their long neck? 47. Where does the pelican put its food? 48. Are the bones always underneath the skin? Describe the bones of the lobster. 49. How do the bones of the lobster differ from ours? Describe the house in which the lobster lives. 50. Does this house ever increase in size? What does the animal do when his shell is too small?

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exposed, and remains in a defenceless state; but by *instinct*—which I shall explain hereafter—he hides himself away in some retired spot, where he can wait in security till a new shell is formed. This is done by a hard substance resembling lime, which is left on the outward surface of the skin by the blood in its circulation, that grows firm and hard, and finally fits over the body and makes a new shell or covering.

51. Insects have no internal skeleton, but are provided with a hard external covering, which serves to support their motions, and protect their organs. In some it forms a complete shell. In others it consists of a tough muscular coat divided into rings. Clams and oysters have no bones. They are supplied with muscles, which permit them to move, and living in a warm house, they can spend their life answering the end for which they were created.

52. Fishes are covered with a thick, strong skin, and generally have scales arranged over each other, like the shingles of a house. Their bodies are covered with a thin slimy matter, which defends them from the water, and they breathe by means of their gills, through which they take in air.

53. Crocodiles are covered with a thick coat of scales, which are proof against a bullet, or blows of any kind. This covering appears very fine, resembling carved work. The crocodile is from twenty to thirty feet in length, and can run with the speed of a man,

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50. How is the new shell formed? 51. Describe the bones of insects? What is their use in different animals? What have clams and oysters instead of bones? How are they enabled to move? 52. Describe the covering of fishes? How do they breathe? 53. Describe the covering of crocodiles. How great is their speed?

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and being insensible to blows, is very dangerous. When a person is pursued by one, he can scarcely avoid him in any other way than by making a turn; for they are so long that it is difficult for them to turn their bodies around.

54. The turtle and tortoise have an upper and lower shell, joined at the sides, through which the head, tail, and four extremities extend. The upper shell is formed by the extension and enlargement of the ribs and part of the back-bone, and the lower one by the sternum or breast-bone, so that a part of their skeleton is on the outside of their bodies; the ribs, breast-bone, and vertebræ, forming their shell or covering. Their stomach is simple, their intestines long, and they are capable of going without food for a long time.

55. They are very tenacious of life, have strong muscles, especially in the mouth and throat; for, when they bite anything, they will not open their teeth, even if whipped or beaten with a stick. A turtle once caught a fine little gosling in the water by the wing, and held him fast by the teeth, and would not let him go till some one shot him with a rifle, which stunned him. A person once caught a turtle, cut off his head, and threw it away; but for several days afterward, the body moved around the house as though alive, owing probably to muscular contraction. I might tell a great many interesting *facts* about different birds and animals, but I must pass on to different subjects.

The bones are covered by a thin substance called

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53. How can crocodiles be avoided? 54. Describe the covering of the turtle and tortoise. How is the upper shell formed? How is the lower shell formed? Do they require much food? 55. How strong are their muscles in the mouth and throat? What anecdote is related of a turtle?

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periosteum. When this is diseased people have the rheumatism.

56. Perhaps some will say, why do not the joints rub together and prevent their moving? This would be the case if they were not continually moistened by a fluid called synovia, which enables them to move very easily, in the same way that wheels can turn much faster and better when well oiled. If there were nothing to moisten our bones, they would creak, and make as much noise as some carriage-wheels do when not properly oiled.

But the bones and joints alone would not enable us to move in all the various directions we desire; therefore nature has provided us with a great many different muscles for this purpose, as well as to give form and proportion to the body.

57. The following cut represents a man with the muscles which cover the bones, without the skin. The muscle is what we call lean meat. Do not forget, children, when you eat beef-steak, that you are eating the muscles of the ox, which keep his bones together, and enable him to draw the great loads. The muscles are red because they contain blood.

58. They cover the bones, crossing the joints, running along up the limbs, over the back, arms, and neck, and are particularly large and numerous where they are most needed, as in the back, hips, legs, etc., and though

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56. By what are the bones covered? What is the rheumatism? Do the joints rub together? What enables them to move easily? What would be the result if the bones were not moistened? What is necessary beside bones and joints for all our motions? What is the office of the muscles? 57. What is represented by the cut? What is muscle? What are the muscles of the ox? Why are the muscles red? 58. How numerous are the muscles?

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so numerous they never interfere with each other. Sometimes the action of a muscle is needed where, if it

MUSCULAR MAN.

were placed, it would be quite inconvenient. Now mark the remedy. *We* could not have devised a better or more ingenious one if we had bestowed a great deal

58. Is the action of muscles ever required where their position would be inconvenient? How is this remedied?

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of thought on the subject. The body of the muscle—which means the centre of the muscle, and is generally the largest part—is placed at a proper distance, and made to communicate, where the action is necessary, by slender strings or threads.

59. As every joint in the fingers, hands, and feet are moved by muscles, if the muscles had been placed in the palm or back of the hand, or in the feet, they would have been very unsightly, and very clumsy in appearance. They are, however, situated in the arm, and act by long strings called tendons, which pass to the joints. These tendons are all clasped down at the wrist by a bracelet which nature has prepared under the skin to keep them in their place. In the same manner the muscles which move the toes and feet are placed along the leg, and are all confined by a little band at the ankle.

60. Without this wise provision the tendons would have sprung from their places every movement we made. Whatever part of the body we examine, we see the wisdom and goodness of our Creator; every part is so nicely fitted and adapted to the purpose for which it is used.

Where there is a muscle needed, there we find it arranged in the most convenient and beautiful manner. Suppose instead of the joint at the shoulder we had had the hinge-joint, like the one at the arm, then we could

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58. What is the body of the muscle? 59. Where are the muscles which move the hands and feet situated? Why are they not placed in the hands or feet? How are the tendons confined at the wrist? How are they confined at the ankle? 60. What would take place if they were not bandaged? What do we see displayed in every part of the body What adaptation is there in the body?

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only have moved our arm and shoulder upward and downward, which would have been much more inconvenient than it is now, when we can turn it in every direction.

61. When we wish to raise our arm, our minds speak to the muscles leading to the arm, and tell them to contract or shorten, and they, like good and obedient children, instantly obey, and the arm is raised. When we desire to put it down, our minds speak to another set of muscles, which expand, and the arm drops.

When John refused to get up this morning, it was because his *mind* did not direct the proper muscles, and not because *they* refused.

62. And when Sarah's mother told her that she must knit so many rounds, or do so much sewing, before she went to play, her little muscles did not move one half so quickly as afterward, when she was engaged in her sports—and why? simply, because her mind was not so much interested, and, of course, her muscles moved more slowly.

63. How often is it that children think they have very hard tasks given to them, which they cannot possibly perform, as *they* say; but they do not consider that if they are disposed and interested in their labor, their muscles will assist them as readily as at play, when they frequently take very hard exercise. When the intemperate man falls to the ground, or totters along, it

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60. Why would it not have been as well to have had the hinge-joint at the shoulder? 61. Explain how we raise our arm? Explain also how we put it down? Do the muscles refuse to obey the mind? 62. When do the muscles move most rapidly? How is this illustrated in case of the little girl? 63. Why do the small tasks of children sometimes appear difficult? Why do intemperate men often fall to the ground?

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is because he has not command over his mind—hence none over his muscles.

64. In no part of the system is the variety, quickness, and accuracy of muscular motion so remarkable, as when we move our tongues in speaking. Every word we speak, every syllable we utter, requires a distinct action of a muscle. If you will notice the many different positions of the mouth in talking, you will be surprised to find that there are numerous persons, who are deaf and dumb, but who can understand what others say by watching the muscles of the mouth.

65. We also move a great variety of muscles in our hands when we write, or otherwise use them; also in our feet, when we walk; and when we eat, and in everything else that we do. Different animals also have muscles to assist their motion. Those without bones depend on muscles alone.

66. The elephant has a very short neck, and a large and clumsy head; consequently it would be impossible for him to take up his food and drink from the ground, like other animals, so he has a trunk or proboscis. This is a long flexible or movable organ, composed of a great number of muscles which contract and expand, and enable him to move it in every possible direction as he pleases. His trunk is endowed with the sense of smelling and feeling to a great degree of perfection. At the extremity there is a hollow, like a cup, which he is

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64. What is said of the muscles of the tongue? Could we speak without muscles? How can the deaf and dumb understand many things that are spoken? 65. In what parts of our bodies do we use a great variety of muscles? On what do animals who have no bones depend? 66. How does the elephant take up his food? Describe the trunk. With what is the trunk endowed? What is there at the extremity?

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able to bend and turn so easily that he can take up his food and put it into his mouth, and can also take up water and force it through the nostrils into the mouth. I shall tell you more about this curious animal when I speak of the instinct of animals.

67. You will understand better what is meant by the contraction and expansion of muscles if you will take a piece of india rubber and stretch it. This will show

THE ARM.

the expansion; and when you remove your hand it will take its original size and appearance; this will show the contraction: but in our bodies there are *two* sets of muscles, one for contraction, and the other for expansion, as you will see in the cut of the arm, and also the manner in which they are joined to the arm.

68. Dr. Alcott relates a very interesting fact to illustrate the action of the muscles, as follows: "In front of St. Peter's church, at Rome, stands an obelisk, or pyramid, of red Egyptian granite, one hundred and twenty-four feet high. It was brought from Egypt to Rome, by order of the Roman emperor Caligula, where

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66. What are the uses of the trunk? 67. How can you show what is meant by the expansion of muscles? Also the contraction of muscles? What does the cut represent? 68. In what way does Dr. Alcott illustrate the action of the muscles?

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it lay partly buried in the earth, on the spot where it was laid down, till about two hundred and fifty years ago, when Pope Sixtus V., by the help of forty-one strong pieces of machinery, eight hundred men, and one hundred and sixty horses, in eight days succeeded in getting it out of the ground; but it took four months more to remove it fifty or sixty rods farther, to its present situation.

69. "When they had at length reached the spot, the grand difficulty was to raise it. They erected a pedestal or foot-piece, shaped like four lions, for it to rest on; and by means of powerful machines, and many strong ropes and tackles, they placed the bottom of it on the pedestal. Then they began with their machinery to raise it. But when it was nearly up, so that it would almost stand, the ropes, it is said, had stretched so much more than the master-workman expected, that it would go no farther.

70. "What was to be done? Fontana, the master-workman, had forbidden all talking, and they now stood holding on the tackles so silently that you might have heard a whisper. Suddenly an English sailor cried out, 'Wet the ropes.' This was no sooner said than done, when, to the surprise and joy of everybody, the ropes shrunk just enough to raise the obelisk to its place, where it has now stood two-hundred and fifty years, and where it may perhaps continue to stand many thousand years, unless an earthquake should shake it down." Our muscles contract and shorten to move our bones, in the same way that the ropes shrunk to move

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69. What difficulty was there when the pyramid was removed to its present situation? How did they attempt to raise it? What new obstacle occurred? 70. What had been the orders of Fontana? What plan was suggested by the Englishman to succeed. Did it succeed? How do our muscles resemble the ropes?

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the pedestal, and also add much to the beauty and proportion of our bodies.

71. As I told you in the previous chapter, all these two hundred and fifty-two bones, and five hundred and twenty-seven muscles, are formed from the blood, and that is made from the food we eat; therefore you must not only be careful, children, about the quality and quantity of your food, that you may have good bones and muscles, but you must take care of these bones and muscles when they are made; for they will soon become diseased and useless if you do not use them.

72. Hence you must take much exercise in the free, pure air of heaven: do not be fearful about running and jumping so as to use all your muscles. Little girls who wish to have strong muscles when they are old must not be ashamed, as some ladies are, to work and assist their mothers, and to run about in the open air.

73. Nearly everything is strengthened and improved by use, and weakened by disuse. You may say that your clothes wear out the more you use them; but such is not the case with the bones and muscles, for although they are continually changing, yet the blood is as constantly forming new ones by depositing those little substances, as when you cut your finger, of which I have hitherto spoken.

74. There is a substance which surrounds the muscles, of a yellow color, called fat. It is this which nourishes us for a long time when we are sick, and do not take

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71. How many bones are in the whole system? How many muscles? From what are the bones and muscles formed? Why should we take care of the muscles? 72. How can you keep your muscles well and strong? How can little girls secure good muscles? 73. Does use wear out the muscles? Why not? 74. What is the fat? What is the use of the fat in sickness?

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much food. Some persons always express wonder when they see any one very thin and emaciated after a severe fit of sickness; they would not be thus surprised if they took into consideration the fact that the fat has all been consumed, and that they must eat heartily again, to make more fat to cover their bones and muscles.

75. There are some animals, like the bat and bear, which, as soon as cold weather approaches, retreat into their houses or dens, and remain there all winter in a sleepy, torpid state. They take no food during this time; but their bodies are nourished by the fat, so that when they awake in the spring they are very thin and poor. Sometimes the fat makes its appearance on the outer surface of the skin, and forms pimples. Too much fat is unhealthy, and prevents a free circulation of the blood.

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74. Should we be surprised to see the fat gone after a fit of sickness? 75. In what state do the bears and bats live during the winter? What is their appearance in the spring? What are pimples? Does the fat make us healthy?

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CHAPTER III.

SKIN.

1. If we had bones and the red muscles only for a body, we should present rather a rough and ugly appearance; but we have a covering drawn over the muscles, called the skin, which conceals them from view. Perhaps you have never thought much about the skin, but have merely supposed, as many undoubtedly have, that it is only a simple substance. This is all that some either think or care about it; but they are quite mistaken in regard to the importance of our knowledge respecting it.

2. The skin is sometimes soft, smooth, and delicate; then it is thick and wrinkled, as in the palms of the hand, or the soles of the feet. It consists of three coats or membranes, which I will describe.

The first is called the *cuticle* or *epidermis*. This is a very thin covering, and is seen when a blister is raised. It is this layer that peels off in cases of fever. This covering is soft or hard, and becomes so by the manner we use it. If the cuticle were as soft on the feet as we find it to be on the hands, little boys could never run barefooted as they do; but it becomes almost as tough

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What is the subject of chapter third? 1. Where is the skin situated? How should we appear if our bodies were composed of bones and muscles only? What opinion do some persons entertain respecting the skin? 2. Is the skin always of the same thickness? Of how many coats does it consist? What is the first? Describe the cuticle. How does the cuticle become hard?

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as leather. A great deal, however, depends on the manner we use this, as well as every other part of the body; for the stage-driver's hands, that are exposed to every variety of storm, are composed of the same material as that of the delicate lady who always uses a muff.

The cuticle on the foot of an infant is as soft and tender as on any part of the body, and does not become hard till the child has walked.

3. This thin cuticle is transparent—which means that we can look through it as we can through glass and water—and has little pores, but no veins or blood-vessels. This skin continued, makes our finger-nails, which protect the ends of the fingers, as the cuticle does the skin.

4. Immediately underneath the cuticle is another layer, called the *rete mucosum*. There is more feeling in this layer than in the first. Spread over this skin is what is called the *coloring matter*. It is a great mistake to suppose that because some have a black, and others white, and others red complexions, that the *whole* blood and skin are of different colors. The only difference between the blackest person who ever lived and the whitest, is in this liquid on the surface of the second skin, which is either black, or white, or red.

5. The third layer is called, to give you another hard name, the *vera cutis*, or the true skin. Over this are

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2. What constitutes the difference between the hand of the lady and that of the stage-driver? Is the cuticle naturally harder on the feet and hands than elsewhere? How does it become so? 3. What farther can you say about the cuticle? What are the finger-nails, and what is their use? 4. What is the second layer of the skin? What is meant by coloring matter? What constitutes the difference in color among individuals? 5. What is the third layer of the skin?

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little nerves, which run backward and forward in all directions, proceeding to the brain, and produce all the pain or sensation which we feel when hurt or injured.

6. When the surgeon takes off a limb, it is not in cutting the bone—if the bone be in a healthy state—that we experience pain, but only when the third skin is cut; and it is for this reason, that it is called the true skin. When we prick ourselves with a pin or needle, we draw blood, how slight soever the wound, because the two outer skins are so thin and delicate that the third feels the touch instantaneously, and the nerves of feeling being so numerous, pass off to the spinal marrow in the spine, and thence to the brain or mind, so that we feel every touch.

7. You have probably noticed that some persons have scars on their bodies from cuts or burns, and that these remain as long as they live. This is so, because, when the third layer, or true skin, is injured in any way, it never grows again; so when we cut or burn it, the wound may heal, but the scar will always remain. You frequently hear people say that children will "out-grow" scars. They sometimes do, it is very true, disappear; but it is when the two outer skins only are affected, that the scar will be removed; for these two skins can be formed again from the blood.

8. There are many who receive accidents when they are quite young, and though the hand, or limb, or part of the body affected, increases very much in size, yet

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5. What produces pain or sensation? 6. What causes pain when a limb is cut off? Why do we *feel* the prick of a needle? 7. Why do scars frequently remain on the body? When do scars sometimes disappear? 8. Do not children ever "out-grow" scars?

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there will always be a scar left. There will frequently be white spots on the bodies of negroes, occasioned by wounds in the third skin, and the removal of some of the coloring matter on the second, which does not grow again.

9. Here again we see how wonderfully good our Creator was, in furnishing a covering for this part, which is so sensitive to every impression, and which, if exposed, would continually be in danger of injury at every step we take, but which is now shielded, as it were, from heat and cold, and all harm.

10. There are little cells or pores on the outer surface, which permit the sweat or perspiration to pass through; and in this way many diseases which lurk about our bodies are continually passing off. This enables us to endure the very great heat of summer; for this constant perspiration produces a moisture which cools the air.

11. There is then one very important thing for us to do, to keep this skin in order, and what do you think it is, children? The little pores are very small, so that when there is a blister formed, and filled with water, which puffs up the cuticle, the water cannot escape through them.

That very important thing for all to remember, is, *to bathe the whole body, at least once every day*, that the pores may not be closed by the perspiration which passes off.

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8. Why do we occasionally see white spots on the bodies of negroes? 9. How is the goodness of our Creator exhibited in the construction of the skin? 10. What is the use of the little cells on the surface of the skin? 11. What important thing have we to do? What would be the result if the pores of the skin were to close?

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12. It is not sufficient to follow the example of too many boys and girls, and I am afraid children of an older growth—merely to put a little water on their hands and faces; many children would like to run off to school without doing even that: but that part of our bodies covered by clothing must be kept clean, as well as our faces and hands, if we wish to preserve our health, our life, and happiness.

13. All children can do this themselves, without troubling their parents; and if they will do it, I can assure them that they will each have a longer life and more enjoyment; for if the particles are suffered to remain on the skin we cannot breathe so well, and of course would soon become diseased.

14. If the windows of a house should never be washed, they would soon become nearly useless, and would give us very little light or pleasure. If the paint and shingles were never repaired, the house would soon fall to decay, and be unfit for us to live in; so it would be as bad, and even worse for our house—that is, our body—if we did not repair or clean what has been called the shingles of our house, that is, the skin. The nails and hair are appendages to the skin; the nails are formed by little layers of thin skin, and serve to protect the ends of the fingers.

15. The hair is for a covering to the skull, each hair having a little bulb or root which has a nerve of sensation. Some say that the coloring matter is contained in

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12. Will it not be sufficient to wash our hands and faces only? What depends on the cleanliness of the skin? 13. Who can relieve parents of this trouble? What will be the good results? 14. How can we apply the principle to the windows and paint of a house? What are the nails and hair called? 15. What purpose does the hair serve?

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this little bulb; others, that it passes through the little tube in each hair. Sometimes the root decays, and then again the skin becomes diseased. In either case the hair falls off, and is dead, or has no life.

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15. Has the hair any nerves? Where is its coloring matter? When does the hair fall off?

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CHAPTER IV.

THE HEART AND LUNGS.

1. I WILL now tell you, children, about this curious heart of ours. You will recollect that you learned in my first lesson, that our food made blood. Suppose, then, we had bones, muscles, ligaments, skin, and stomach, but no vessel or receptacle to receive the blood when it was made.

2. Life, under such circumstances, could no more be sustained, than a steamboat could sail through the water of a thousand little streams, if it were not collected together in a river or bed of water. The heart is a double organ, and lies in the middle of the chest, with the point inclining to the left side, which gave rise to the idea that it was situated there.

The letter *a* is the left ventricle; *b*, is the right ventricle; *c*, *e*, *f*, is the great artery that proceeds from the left ventricle; *g*, *h*, *i*, are arteries that proceed from the great artery; *k*, is the artery that goes from the right ventricle to the lungs; *l*, *l*, are branches of the artery going to the two sides of the lungs, which carry the blood there; *m*, *m*, the veins which bring the blood back from the lungs to the left side of the heart; *n*, is the right auricle; *o* and *p*, are the ascending and descend-

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What is the subject of chapter fourth? 1. What do we need beside skin, bones, muscles, and blood? 2. What would be the result if there was no receptacle for the blood? Describe the heart and its situation. Explain the cut.

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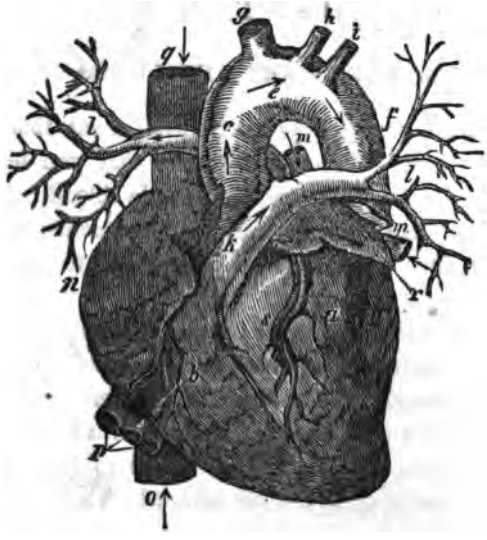
ing veins, which meet and form the right auricle; *p* represents the veins from the liver, spleen, and bowels; *s*, is the left artery, one which nourishes the heart.



THE HEART.

3. The heart has four divisions: two to receive the blood after it is made from the food, called *auricles;* and two others, called *ventricles*, to send it to the several stations where it is most needed.

4. After the blood comes to the heart from the veins, it is necessary to send it to the lungs before it is fit for use. For this purpose there are muscles in the heart which contract and force it out to the lungs:

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3. How many divisions has the heart? What are they called? What is the office of the auricles? What is the office of the ventricles? 4. Where is the blood, that comes to the heart from the veins, sent? How is this accomplished?

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5. Motion is of two kinds: voluntary and involuntary. That is voluntary, which is performed by means of the bones, muscles, and tendons, and is influenced by the will or mind.

Involuntary motion is that produced by organs not connected with the bones, but which possess muscular fibres; as, for instance, the stomach, which is a hollow muscle, and digests its food without the knowledge of the mind.

6. The heart is also a hollow muscle, which contracts and expands, to receive and send out the blood when necessary. It is protected by a bag called the pericardium, which is made of strong and rough materials. This case holds a very little water; just enough to permit the heart to move freely and easily, and is placed between the lungs.

7. The lungs fill all that cavity in the chest, not occupied by the heart, and are composed of blood and air-vessels. They are so light that they would float in the water. They are sometimes called bellows, because they contain so much air. They appear like the branches of a tree, and extend each side of the heart. When we take in a breath of air, we *inhale* it; when we throw out a breath we *exhale* it.

8. We *inhale* it, to change the color of, and to purify

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5. What are the two kinds of motion? What is voluntary motion? What is involuntary motion? What is an example of involuntary motion? 6. How is the heart enabled to receive and send out the blood? By what is the heart protected? What does this case contain, and for what purpose? Where is the heart situated? Of what are the lungs composed? Where are the lungs situated? What is said of their weight? What are they sometimes called? What do they resemble in appearance? What is meant by inhalation? What is meant by exhalation? 8. What is the use of inhalation? What is the use of exhalation?

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the blood. We *exhale* all that does us no good, but which would, if retained in the body, be an injury to us. You know, children, that air is all around us; we could not move or live without it; and though we can neither see nor handle it, yet it has been divided into several gases, called oxygen, carbon, and nitrogen.

9. When the air is thus divided, one part of it will sustain life, and the others are very injurious. The oxygen of the air unites with the dark blood in the lungs, and turns it to a red color, which then rushes back into the heart. The muscles of the heart contract, and send it out through the vessels, called arteries, to make skin, bone, flesh, hair, nails, and every other part of the body. It finally terminates in the small capillaries and veins, when it is changed into a dark red color.

10. It is then unfit again for nourishment, as some of the good qualities have been taken out in its circulation. This dark red blood then unites with the chyle, is sent into the heart, thence to the lungs, and is purified by the air, then sent back with its color changed, and proceeds as I have previously stated.

11. You may ask why the blood does not rush back again to the heart after it has entered the artery. It is because there are little valves or trap-doors that shut over the arteries when the blood has entered them.

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8. Is air confined to any particular space? Into which has it been divided? What are these gases called? 9. Are these different gases equally healthy? What effect has the oxygen on the dark blood, and what becomes of the blood? By what means is the blood sent from the heart? For what purpose is it sent through the arteries? What becomes of this blood? 10. Why is this blood then unfit for nourishment? Describe the farther course of the blood. 11. What query might here suggest itself? What prevents the flow of the blood back again into the heart through the artery?

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These move as easily as a door closes on its hinges, and prevent the return of the blood.

12. The arteries are larger than the veins, and lie deeper in the system, or more removed from the surface. They serve to carry the blood out of the heart, and to distribute the proper nourishment where it is required. The veins are more numerous, and smaller in size than the arteries, and bring the blood to the heart.

13. There was great wisdom manifested by our Maker in locating these different vessels; for if we accidentally cut a *vein*, there is not much danger; but if an *artery* be severed, and the ends are not immediately tied, death will be the result.

14. You will hear physicians frequently speak of "feeling the pulse;" and, for that purpose, take hold of the wrist. All they mean, is, that they wish to know how rapidly the blood passes or circulates, and as the artery at the wrist is nearer the surface than any other, it can be relied on with more certainty, although the blood does not flow through this one, more rapidly than through the others.

15. By palpitation of the heart, we mean that there is some obstruction in the way, which makes the circulation irregular. Our lives and existence depend on the regular circulation of the blood; hence, this palpitation is considered very dangerous. We ought not to

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12. Describe the arteries, and their use. Describe the veins, and their specific purpose. 13. How was the wisdom of our Maker displayed? Do the veins or arteries require the most care, and why? 14. What is meant by "feeling the pulse?" Why do physicians always judge of the condition of the body by the artery at the wrist? 15. What is meant by the palpitation of the heart? Why is palpitation considered dangerous?

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breathe the same air the second time; for if we do, it will not then contain sufficient oxygen to produce that change necessary for good blood.

16. In order to have as pure air as possible, we should *ventilate* our rooms, especially those in which we sleep. When the blood is taken from the body, and exposed to the air, it becomes thick, or coagulates; little yellowish particles of fluid arise, which are called the serum; a thick substance is left, which, when washed, loses its red appearance, and becomes white; this is called the fibrine of the blood. It is supposed by many that there is iron in the blood, which gives the red color to these particles; and when some are called iron-hearted, it is said that they have more than the usual quantity.

17. We are, however, at liberty to doubt this if we choose. You have all heard of consumption. This means that the lungs are consumed, or incapable of inhaling a sufficient quantity of air to support life. This disease, which causes the death of many dear friends, is produced by exposure to the cold, wearing thin shoes in cold and damp weather, and by drawing the clothes so tightly around the ribs that they crowd in and destroy the lungs; this might be *prevented* in a variety of cases by proper care and attention.

18. Dr. Harvey, an Englishman, made the discovery of the circulation of the blood in the year 1620. For

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15. Why should we not breathe the same air twice? 16. How can we obtain pure air? What rooms especially require ventilation? What change takes place in the blood when it is exposed to the air? What is the serum, and what is its color? Describe the fibrine and its appearance. What other elements do some suppose is contained in the blood? Is there always the same quantity of iron? 17. What is consumption? How is this disease produced? How can consumption be avoided? 18. Who discovered the circulation of the blood? In what year?

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many years he durst not let the public know his ideas and opinions on this subject; and when he did, he was much opposed, very few believing his new principles.

19. Nearly every discovery that has been made in physiology or philosophy has met with very bitter opposition when first introduced. Some will not believe any new doctrine, even when there are light and evidence enough to prove it to be correct, but adhere tenaciously to the old system of things. But Harvey lived long enough to see his principles admitted by the scientific; and though he was much persecuted for many years, yet he had the pleasure to know that he was correct in his belief. Among the many proofs which led him to make this discovery were the following.

20. *First;* If the chest of a cold-blooded animal, a toad or a frog, be opened, the heart can be seen to contract and dilate. Then it remains an instant at rest, and again dilates and contracts, and raises itself a little, the same as in our own bodies, and causes beating. There would be no cause for this expansion and contraction, if the blood did not flow in and pass out of the heart.

21. *Secondly;* Another reason is, that in all the arteries there are valves, which permit the blood to pass into them, but prevent its passage backward toward the heart; also, in all the veins, the valves allow the blood to go toward the heart, but not in the opposite direction;

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18. Did he make his discovery known? 19. How has every discovery in science been received by the public? To what do some always adhere? Was the opposition and prejudice finally removed? 20. What was the first proof of the circulation of the blood? 21. What was the second proof of the circulation of the blood?

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which facts alone would clearly prove to every candid mind, that they would not have been constructed in this manner, and so well adapted for the circulation of the blood, unless it were for that specific purpose, and for that alone.

22. *Thirdly;* It has been said that the circulation of the blood through the veins and arteries may be seen by a microscope—an instrument by which the smallest object may be seen—in some of the delicate parts of different animals, as in the web of a frog's foot.

23. *Fourthly;* The way in which bleeding from a vein is performed, is another proof of the circulation of the blood. A tight bandage is placed around the arm *above* the place where the vein is to be opened. The blood in returning through it toward the heart, is interrupted in its passage, and as the artery underneath is not compressed, the vein is filled with blood, and is swelled. If the vein be then opened below the bandage, the blood will flow freely; but if the bandage be tight enough to compress the artery, the blood cannot pass through it from the heart, so there will soon be none in the vein; or, if the opening be made above the bandage no blood is obtained.

24. *Fifthly;* In the amputation, or cutting off, of a limb, the surgeon ties only the ends of the arteries together. As these carry the blood from the heart to all parts of the body, the patient would soon bleed so as to cause

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21. What should the present construction of the veins and arteries prove clearly? 22. What is the third proof of the circulation of the blood? What is a microscope? 23. What is the fourth proof of the circulation of the blood? How is bleeding from a vein performed? What would be the result if the bandage be too tightly bound? 24. What is the fifth proof of the circulation of the blood? Why do not the veins require to be tied?

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death, unless some means were taken to prevent it. The veins which carry the blood back to the heart do not bleed, and therefore need not be tied.

25. From these five reasons or proofs of Dr. Harvey, we cannot but believe that the blood passes from the heart, through the arteries, into the veins, and is returned by them into the heart; or, in other words, that the blood continually circulates, or is distributed through our bodies.

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25. To what conclusion should these five reasons of Dr. Harvey lead us?

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CHAPTER V.

SECRETION.

1. The word secretion means a separation of fluids. When it is used in physiology, it has reference to a certain process by which various substances are separated from the blood, without being changed in their separation. We call this act of separation secretion; and we also call the substance that is separated secretion; as we say that by secretion the gastric juice is formed in the stomach, and we say also that the gastric juice is a secretion of the stomach. Both are correct.

2. Without secretion there would be no possible way for the different parts of the body to be nourished, and many injurious substances would not be discharged from the blood; therefore it is very important for our health that these secretions should not be interrupted. These substances, though derived and separated from the blood, are very different in appearance and composition from the blood, as we shall see.

3. There are three kinds of organs for the purpose of secretion, which I wish you to remember, when I have explained them to you.

First—The exhalant vessels.

What is the subject of chapter fifth? 1. What does secretion mean? How is the term used in physiology? What two things does this word comprehend? What is an example? 2. What are the advantages of secretion? How important is secretion to health? Are the secreted substances similar to the blood? 3. How many kinds of secretory organs are there? What is the first kind?

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Second—THE FOLLICLES.

Third—THE GLANDS.

4. You may recollect that I have informed you that there are a great many little vessels through which the chyle passes over the intestines. These are called capillaries, and it is thought by many that the exhalant vessels, which are very small, are connected with them. These exhalations are internal, when they take place in the body. The head, chest, and stomach are all lined with a thin covering, which throws out a little fluid, sufficient to keep them moist, and enable them to move easily.

5. The *fat*, of which I have heretofore spoken, is caused by exhalation, or is one form of secretion. It is first an oily, greasy fluid, then becomes hard, and serves as a protection to the skin. Then the ligaments around the joints are lined with the same kind of membrane as the stomach; this secretes the *synovia*, which enables the joints to move easily.

6. The *marrow* that is in the long bones is another secreted exhalation. The use of the marrow is not known. Many supposed it were to make the bones less liable to be broken; but there is more of it in the bones of aged than in those of younger persons, and their bones are much more easily broken.

7. The external exhalations are those which take place out of the body. These are the *sweat* or *perspi-*

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3. What is the second kind? What is the third kind? 4. With what are the exhalant vessels connected? What is meant by internal exhalations? Where are some of the internal exhalations found? 5. By what is the fat caused? How is it formed? What is the synovia, and where is it secreted? 6. What secretion is contained in the long bones? What is the use of the marrow? How do we know that it does not strengthen the bones? 7. What is meant by external exhalations?

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ration that is continually passing off, and a little mist or fluid which passes from the lungs.

8. The second division of secretory organs is called FOLLICLES. These are little bags, found in the skin near the surface. They secrete an oily substance. When this does not pass through the pores of the skin, it appears like a little ridge or worm; but if the pores be kept open by frequent bathing, this fluid will pass off as soon as it is secreted. There are follicles in each ear to secrete the *ear-wax*, which will produce deafness if it be not removed. There is a little follicle at the root of each hair; and the difference between the moistness in the hair of different persons depends on the amount of liquid that the follicle secretes.

THE GLAND.

9. The third division of secretory organs is called *glands*. These are situated in different parts of the

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7. What are some of the external exhalations? 8. What is the second division of secretory organs? What are the follicles? How does their secretion appear? What is necessary for us to do that this secretion may pass off? What does the follicle in the ear secrete? What is one cause of deafness? What is the use of the follicle at the root of the hair? 9. What is the third division of secretory organs?

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body, and are of various sizes; some being quite small, others quite large, weighing several pounds, and contain arteries and veins to carry the blood to them and return it again. The substances which the glands secrete differ very much in appearance from the blood, although they are formed from it.

10. It is thought that the elements of all the different secretions exist in the blood; but when different elements are united in different quantities or proportions, the result, of course, is different; for the same reason that a certain quantity of oxygen gas, being united with several different gases, makes air; but if we unite another quantity of the same oxygen gas with other gases, it makes water; so that if two or more elements existing in the blood were united, they would produce tears; while several other elements would make the gastric juice, and so on with all the other secretions.

11. There is, however, a principle of life within us, that regulates all these different operations, that they may produce the desired result. Some of the most important fluids which the glands secrete, are the following: first, the

SALIVA.

12. The saliva is formed by three pairs of glands, situated in the mouth. They secrete the fluid which passes into the mouth through a little tube in the muscles of the face. Its principal use when mixed with the

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9. Describe the glands. Are the substances secreted by the glands similar to the blood? 10. Are these substances contained in the blood? What produces the difference between them? Explain in what way this principle holds true in reference to different quantities of the same gas? 11. What regulates all these different operations? What is the first fluid that is secreted by the glands? 12. How is the saliva formed? How does it pass into the mouth?

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food, is to moisten it, and render its passage more easy down the throat. It also makes the voice clearer and better, by keeping it moist. The saliva has no smell, taste, or color, is a little heavier than water, and contains some salt and a little acid.

GASTRIC JUICE.

13. This fluid is secreted in the stomach, and very much resembles the saliva; yet it is more powerful in its operations, and of more importance to us in its use. During the process of digestion, this fluid is poured on the food, and dissolves it into a soft mass, which is called chyme. It has the same effect on the food that rennet has on milk in the process of making cheese. So when little infants throw up their milk from their stomachs in a curdled state, it shows that their stomachs are in a healthy condition.

14. It is nearly tasteless, and without odor, yet it has the quality of preventing putrefaction, and will even remove it after it has commenced. It is said that portions of dead bodies, which become putrid and disagreeable, when taken into the stomachs of some animals, become perfectly inoffensive, and as in a state of preservation.

15. Though the gastric juice possesses those remarkable solvent properties, which enable it to dissolve even the hardest substances, yet it has no power to act on

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12. What is its principal use? What are the properties of the saliva? 13. What is the second secretion of the glands? Where is the gastric juice secreted? In what does it differ from the saliva? What is its use? What effect has it on our food? When do we judge that the stomach of infants are in a healthy condition? 14. What are the principal properties of the gastric juice? 15. Does the gastric juice act on substances having life?

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anything that has life. Consequently, worms will live in the stomach for some time, but as soon as they are dead, the gastric juice acts on them and dissolves them. The gastric juice has sufficient power to eat holes through the coating of the stomach; but this is the case only when the person has been some time without food.

16. That digestion is effected in the manner here described, and is also influenced by the gastric juice, has been proved by experiments tried with a young Canadian, who received a wound in his side large enough for his physician to make observations when he took his food. He ascertained how long it required different kinds of food to digest, and the effect of the gastric juice on it, and made various other interesting experiments, which are fully detailed in almost every work on this subject.

BILE.

17. The bile is secreted by the liver, which lies in the right side, just between the ribs, and is the largest gland in the body. It has a brown, yellowish color, is very bitter and thick, and assists in the formation of chyle. Some suppose that the liver acts as a kind of sponge, to absorb all noxious substances in the blood, and throws them out of the system by means of the bile.

18. You sometimes hear that persons have a "*bilious stomach.*" The bile should not be in the stomach; and

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15. When does this fluid act on these substances? How powerful is it at times? When does this take place? 16. In what manner has it been proved that these ideas of digestion are correct? What facts were ascertained by means of this youth? 17. What is the third secretion of the glands? What organ secretes the bile? What are the properties of the bile? What do some suppose that the function of the liver is? 18. Should persons ever have "*bilious stomachs?*" Why not?

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this would never be the case if the stomach were always in a healthy state. When oily substances, as gravy, etc., are in the stomach, the gastric juice cannot act on them; so the bile flows from the liver, enters the stomach, and helps to remove them.

PANCREATIC FLUID.

19. This fluid is secreted by the pancreas, a gland situated behind the stomach. This gland secretes a very little fluid, of a yellow color, salt taste, without odor, similar to the saliva. Its secretion is not increased during digestion, yet many suppose it assists in forming the chyle.

TEARS.

20. The tears are secreted by the lachrymal gland, behind and at the corner of the eyes. They have a salt taste, and are inodorous.

21. The above are some of the principal secretions; and, from what has been said of them, you will again see how very important it is to possess good blood; for from this very blood is formed the tears, the gastric juice, the bile, the bones, etc.

22. There are little vessels situated all over the body, one of which has a little fluid to make the finger-nail; another, the joint; another, the bone; one has a substance which helps to give the eyes their beautiful

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18. When is the bile necessary to the stomach? 19. What is the fourth secretion of the glands? What organ secretes the pancreatic juice? What are the properties of this fluid? 20. What is the fifth secretion of the glands? By what are the tears secreted? What are these properties? 21. What is a conclusive reason for us to have good blood? 22. Name some of the uses of the little vessels situated over the body?

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color; another, to help form the soft hair; and so on. All these little vessels have their respective office to fulfil, which is done without any confusion, in perfect system and order.

23. Hence we see that the work of secretion is a beautiful system, nicely arranged by our Creator, and should cause us to love and admire that great Being who has formed our bodies, and who sustains us by his goodness and power.

24. What a wonderful body we have to keep in order; just think of the heart, beating, beating, more than one hundred thousand times in a day, month after month, for seventy or eighty years, without once being out of order.

25. Everything in machinery needs to be thoroughly repaired occasionally, however perfect the construction may be. A perfectly finished wheel will not always revolve without being oiled. The most beautiful house needs frequent repairs.

26. But such is not the case with our heart. It is ever faithful to perform its duty, if we are only faithful in taking care of it. It never grows weary, nor falls asleep; but, whether we sleep or wake, it is untiringly at work.

27. Then what a perfect frame-work we have, finished and covered so nicely with skin and muscles! We

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22. In what way do these vessels perform their respective office? 23. How should we regard the work of secretion? What feelings ought it to incite in us toward our Creator? 24. Why should we ever think of our bodies? Is there anything remarkable about our hearts? 25. What is a fact in regard to all machinery? How does this apply to a wheel or a house? 26. Does the same principle hold true with respect to our heart? 27. What nice adaptations are there in our frame-works that should call forth our admiration?

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have eyes for seeing, and ears for hearing; we can discern pleasant odors, and we can taste agreeable food. We should surely have feelings of gratitude to our Maker for all that he has done for us, and ought to feel under the greatest obligations to keep all these different parts in order; to imbibe no foolish and evil habit which will weaken the powers of our bodies, or the faculties of our minds. Some have naturally more vitality than others; but all can enjoy a measure of health for many years, if they will but obey the *laws* of health.

28. All organized beings—by which I mean those that have functions or organs to nourish and sustain them—are limited in their periods of existence. The length of life in plants, animals, and man, depends very much on the time which it requires for them to mature. Those which mature or ripen quickest, soonest come to decay; those persons whose bodies are perfected the quickest, die the soonest.

29. The little sapling has to grow many, many years, before it attains to the full stature of an oak; yet, when it is matured, it will live for ages, sometimes for a thousand years. But the annual requires but a few months to bring it to perfection. We plant the seed; in a few weeks the tiny leaves appear, expand, bud, blossom, and the plant dies. The same holds true in regard to man.

Man rarely comes to maturity before twenty or

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27. Under what obligations are we? In what way can all enjoy a measure of health? 28. What are organized beings? Do they always exist? On what does the length of life in man, plants, and animals depend? Explain this fact. 29. What is said of the growth and duration of the oak? In what way does the annual differ from the oak? What is the difference between man and the lower animals in regard to maturity and decay?

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thirty years, and his life is proportionately long, being three score years and ten—seventy years—when he takes care of himself; but some of the lower animals attain their full size and growth in a few years, and scarcely ever live over twenty or thirty.

30. In early youth, before the body is matured, the functions of digestion, nutrition, etc., are very active, and are rapidly performed. The brain is larger, and the nervous system is then more developed than in after periods of life. The child eats, his food nourishes his body, and he grows rapidly; but the man eats a much greater quantity of food, yet we can scarcely perceive any difference in *his* stature or size from one year to another.

31. There is a period when the body has attained its full growth, called maturity. When this period is reached, there appears for a little time to be neither progress nor decline. Though there is in our system a power to repair all injuries which the body receives, to heal all the wounds, and to unite all the bones; yet the body will *finally* decay, regardless of all our exertions to guard and preserve it.

32. We cannot see that this decay is necessary from the nature of the body, neither can it arise from the gratification of the artificial wants of civilized life; for savages do not retain their faculties as long as those who are in a civilized state. But it appears to be the

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30. In what condition are all the functions in youth? What is said of the brain and nervous system at that period? What is the effect of the food? Has the food the same effect on the man? 31. What is meant by maturity? What is the condition of the body at this time? Is there anything in our systems to enable us to resist injuries, etc.? Will this power always continue? 32. Do we know the causes of decay? What appears to be one cause?

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order of nature, that man should live, then die. When adult life has passed, then the organs begin to decay.

33. The nervous system is first affected; the hearing, sight, etc., grow feeble; the muscles become stiff, hardened, and difficult to contract, so that they cannot well support the body; hence old persons are inclined to stoop and totter, and therefore require the additional assistance of a cane or staff. Then the circulating system begins to decline; bony substances gather around the veins and arteries, and thus interrupt the free passage of the blood. The lungs cannot breathe or inhale the air so well, therefore the blood is not so well purified.

34. These systems become more feeble, till they are no longer able to perform their various offices; then death ensues. Many accidents are fatal, and produce death in aged persons, because their bodies become enfeebled, and can neither assist nor repair injuries as well as in youth. The bones of children easily unite; but in after years there is a want of that strength and vigor, so that when the bones are shattered or injured, the injury cannot well be repaired.

35. Children, I hope by these few lessons and instructions, you will have been incited to think more of the functions of your bodies, and that the older you grow the more you will become interested in this important study. When you see flies walking and balancing themselves on the ceiling, think, and try to find out why they can support themselves there without falling. So

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32. What takes place after adult life has passed? 33. What system is first affected? Why do aged persons require an artificial support? What system next decays? How does this affect the blood? 34. When does death ensue? Why are accidents more fatal to the aged than to the young? What is said in regard to the bones of children? 35. What ought these lessons to incite and encourage in children?

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of everything around you. Be not contented to know that things *are* as you see them, but find out the *reason* for the different action, if you can. I hope you will now understand better than you did what physiology means.

30. I will give you another chapter on the instincts of animals, and will then leave this interesting part of the subject, to speak of another part even more interesting, if possible: viz., the brain and nervous system.

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35. Should the mind be contented by observation alone? What should we always endeavor to ascertain? 36. What subject will be next explained?

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CHAPTER VI.

INSTINCT.

1. THERE is in many respects a great resemblance or analogy between man and other animals. Some animals exhibit marks of skill, sagacity, caution, or judgment; and, in many cases, the power of reasoning almost equal to human beings.

2. Some suppose that every animal possesses all the faculties with which man is endowed, only in a much more limited degree, modified by circumstances, but not guided by reason.

3. Whether this be correct or not, we know that animals *show* as many of these different talents as it is possible without having the intellect of man. Sometimes they appear to be guided by experience, observation, and even reason. However this may be, they are endowed with a principle that enables them to seek their food, build their habitations, and take care of their young, which is called INSTINCT. They have also the power to vary their means or course of action, in order to accomplish certain ends, when circumstances vary or require this change.

What is the subject of chapter sixth? 1. Is there any resemblance between man and other animals? What do some animals exhibit? 2. What is the opinion of some with regard to the faculties of man and human beings? 3. What certain knowledge have we respecting them? By what do they appear to be guided? With what are they endowed? What is this principle called? When can they vary their means of action?

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4. Instinct is that which prompts an animal to act, without teaching from others; to follow a certain course which is best adapted to his wants and condition.

5. The reason of man has been called a "bundle of instincts;" yet there is a wide difference between the powers of men and animals. Man improves from one year to another; his knowledge is the result of experience, observation, and reflection.

6. The dwellings of man differ in different countries and ages, from the hut of the savage to the palace of the king; though man constructed both the hut and the palace.

Beavers build the same kind of houses now that they built many hundred years ago; and so of all other animals; there is no improvement from one generation to another; they always continue the same.

7. Smellie says there are two kinds of instincts; one kind which the animal can scarcely help obeying, without any instruction or experience; and a second kind by which they can accommodate themselves to peculiar situations, and can also improve by experience and observation.

8. I will relate some anecdotes to you, which illustrate these different instincts in some of the different animals; and though it may *seem* to you impossible that these are true, yet I shall mention none except those

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4. What is instinct? 5. What has the reason of man been called? What difference is there between the powers of men and animals? 6. What is said of the dwellings of man in different ages? What is said of the houses of beavers in different ages? 7. How many kinds of instinct are there? What is the first kind? What is the second kind? 8. How can these different instincts be illustrated?

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which I *know* to be true by having witnessed them myself, or those related to me by friends who have seen them, or those given by different physiologists as facts. So you may believe them all.

9. Young birds always open their mouths at every noise they hear, because they think it is their mother's voice, and that she is bringing them food. They do not use their wings till they have gained strength, and have observed in which way mother-birds use theirs.

10. Insects place their eggs in the most favorable situations for their young. All those whose young feed on vegetables place their eggs on plants. Those that always live in the water place their eggs on the surface of the water.

11. The wasp builds her nest, deposits her eggs in it, then brings just enough green worms, which she rolls together so that they cannot move, and then leaves them as nourishment for her young. She does not wish them as food for herself, but knows that they are the best nourishment for the little young wasps. Dr. Darwin relates a fact which he saw himself. A wasp caught a fly almost as large as her own size. She cut off its extremities and tried to fly away with the body, but found that on account of a slight breeze, the fly's wings impeded her own flight. She came to the ground, cut off first one and then another of the fly's wings with her mouth, and then flew away.

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8. Will these anecdotes be true or false? From what sources are they derived? 9. What do young birds imagine every noise is? When do they use their wings? 10. Where do insects place their eggs? What kind are placed on plants? What kind are placed on the surface of the water? 11. How does the wasp provide for her young? Does *she* ever eat these worms? Why does she procure them? What anecdote does Dr Darwin relate of a wasp?

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12. Bees exhibit a wonderful sagacity. They choose their queen, and then build their cells, which are very neatly and beautifully constructed. When they increase so much in number that the old hive is not large enough to contain them, they choose their queen, swarm, and seek a new home. If there is not room for all their operations, they increase the depth of their honey cells. Those who wish to find the honey of those bees which have strayed away in the woods, and have built their nests there, catch two bees, carry them to a distance, and then let them fly; each takes the straight line towards the nest or hive, and by observing these lines the hive may be found, in the direction where they cross each other.

13. Sometimes bees stray away and build their hives in the trunks of hollow trees. There was a large tree cut down in a certain place, and near the root a great many layers of honey were found; the bees had probably deposited their honey in it for many years. Bees are industrious insects, and will not permit any drones —those bees which will not work—to live with them, but they all assist each other.

14. The spider and many other insects exhibit a kind of singular instinct. If you touch a spider with your finger, he will run away as swiftly as he can; but if he finds that he *cannot* run in any direction, he draws his feet together, and lies perfectly motionless, feigning to

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12. What sagacity do bees exhibit? When do bees "swarm?" What course do they take when their cells are not large enough? How can we find the honey of those bees who have strayed away into the woods?
13. Where do bees frequently build their hives? How has this fact been ascertained? What is one peculiarity of bees? What is meant by *drones*?
14. What particular instinct does the spider exhibit?

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be dead; and if he be even torn by pins, he will not show the slightest degree of suffering.

15. Ants generally make their nests on the ground; but in Siam they build them on trees, because that country is often flooded with water, and people are obliged to build their houses on long poles.

16. There are some birds that always move to a warm climate as soon as winter approaches. They go at a particular time, and return again at a particular season.

When birds have liberty to do as they please, they always build their nests of the same material—the same mud and straw, and in the same spot, year after year.

17. Sometimes they wholly change their mode of building, especially in those countries where snakes abound. The bird hangs its nest on the branch of the tree, and makes the opening to it at the bottom, so that should the snake crawl up the tree to the limb, it could not get into the nest to take the eggs.

18. There is a certain bird that has been seen to catch grasshoppers, and fasten them to the twigs of trees where the little birds were accustomed to come. Why do you think she did this? for she never eats them herself. The reason was this; her instinct taught her that little birds were fond of grasshoppers; and as *she* was very fond of little birds, she put them there

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15. Where do ants build their nests? What is their custom in Siam? For what purpose? What are people obliged to do there? 16. How does the climate affect birds? How do birds generally build their nests? 17. Do they ever change their mode of building? Where does this take place? How does the bird endeavor to avoid the snake? 18. What is the custom of a particular kind of bird? Explain why she does this?

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for a bait to decoy and bring them to that place, so that *she* might catch and eat them.

19. A swallow once slipped its foot into the noose of a cord, and by endeavoring to escape, drew the knot tight, so that he could not get away. He raised a most piteous cry, which drew a large flock of swallows around him. When they perceived his condition, each one struck the cord with his beak till it was broken, and their companion was freed.

20. When two goats meet on a narrow ledge of rock over a precipice, and see that there is no room to pass each other, after stopping a moment, one crouches down, and permits the other to walk gently over his back; then each one continues his journey along the narrow and dangerous path. Certainly they show a more accommodating spirit than some men do.

21. There was a certain cat, which frequently went into a closet, the door of which was fastened by a common iron latch. When the door was closed, and she wished to come out, she mounted on the bench of the window, which was near the door, and with her paw lifted the latch, and came out. This she did for many years. Another cat, which lived with a friend of mine, was accustomed to come to the kitchen door every morning, at precisely five o'clock, open the door with her paw, and come into the house.

22. The same family had a dog which would jump and be very uneasy as soon as he saw any of the men in the family put on their coats as if to go out. If they

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19. Relate the anecdote of the swallow? How did the other swallows express their sympathy? 20. In what way do two goats accommodate each other? 21. Relate the anecdote of the cat. What was the custom of another cat?

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told him in a quiet tone that he might go with them, he would lie down quietly at their feet; but if they said, you cannot go, he would skulk away under the table.

23. Dogs possess a remarkable degree of instinct, sagacity, or understanding. In Switzerland there are high mountains, the tops of which are always covered by snow. Sometimes the snow falls from them suddenly, in such large masses that houses and travellers are buried. There is a convent among the mountains called the St. Bernard, where the monks keep a particular kind of dog that they send out after a snow-storm in search of travellers, whom they frequently dig out of large banks of snow, and save their lives.

24. There are hunting dogs in Mexico, which assist in catching and killing deer. The weight of the deer is generally six times as great as their own, so that if they should attack them in front they might be killed, or have their backs broken. Instead of this they attack them at the side, or at the back, and when the deer starts to run, the dog throws him over. Some dogs will take a basket, and go every day to market to get their dinner. They can always find their master by smelling his tracks along the ground, even if he is at a great distance, and, if possible, will never leave him.

25. Many interesting anecdotes are related by different writers about the sagacity of the elephant.

When tamed, it becomes the most gentle and obedient

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22. How did a dog exhibit great understanding? 23. What powers do dogs generally possess? What is said of the mountains in Switzerland? What convent is situated there? For what purpose do the monks keep dogs? 24. What is the use of the dogs in Mexico? How do they show great sagacity? In what way can dogs find their masters? 25. What are some of the peculiarities of the elephant?

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of all animals. It can be taught to kneel, to have a chariot or any load put on its back, which it carries easily. They sometimes exhibit shame and ambition. They were formerly used to assist in launching ships. A certain one was employed to take a large vessel into the water, but it was too heavy for him. When his master saw that he was incapable to perform his task, he said, "take away the lazy beast, and bring another." The creature heard this, and made another effort, but broke his skull, and died on the spot.

26. In a certain city, an elephant, in passing along the streets, put his trunk into the window of a tailor's shop, where several people were at work. One of them pricked the end of it with a needle; the animal passed on as if he did not perceive the insult; but when he came to a puddle of muddy water, he took some in his trunk, went back, and threw it all over the men, and spoiled their work.

27. An artist in France wished to paint the elephant with his trunk raised in the air, and his mouth open. So a boy was employed to throw fruit into his mouth, to keep him in this position; but, as he frequently deceived him, he at last became angry, and one day took some dirty water in his trunk, and threw it all over the painter's picture, as if he knew that this was the most effectual way by which he could vent his spite.

28. A child that could not walk was left to the care of an elephant; as soon as the child crawled to the

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25. What feelings do they sometimes exhibit? For what were they formerly used? How did unkindness affect one? 26. Relate the anecdote of the elephant and the tailors. 27. Relate the anecdote of the artist and the elephant. Why did the elephant spoil the picture instead of insulting the boy?

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the elephant's chain, he would quietly lift it trunk, and replace it in the spot where it left. They formerly went to the battle-field Burmans to help them carry on their war. extra task was to be performed, some favorite held out to the elephant before the time; s if aware that his success would be rewarded, ble exertions to earn it, and please his master. beaver is also a very remarkable animal. e ies where they abound, they gather together in mpanies, and in the summer make excursions woods to choose the trees they wish to use in their huts. They select a spot in a lake or d then gnaw down the trees; and they always em in such a manner that the trees will fall into

hey build their houses large enough to contain teen to thirty beavers. Each cabin has two one on the side of the land, and one leading to er, so that they can either go ashore or swim in er. They plaster their cabins with a strong of mud, using their flat tails to smooth it. ouses are very strongly built, and can resist winds, and currents in the streams. Sometimes ve paths under the ground, where they can when any danger approaches.

---

at care will they take of children? Of what assistance were e Burmans? In what way can they be incited to make exer- Wh hat remarkable traits has the beaver? In what way do the trees for their huts? 30. How large are their houses? y doors do their cabins have? What is the design of having w do they plaster their cabins? For what purpose do they under the ground?

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31. The ostrich is the tallest and swiftest of all animals. When it is chased it throws stones and gravel with its feet at its pursuer.

32. Oysters throw water out of their shells when they are attacked, as if to vent their spite against their enemy.

33. A certain pony would open the latch of the stable door, and raise the lid of the corn-crib, which he learned to do himself.

34. Monkeys possess a high degree of instinct, and resemble man more than any other animal. The teeth and paws are very much like our teeth, hands, and feet. In their wild state they live in the woods, on the trees, and feed on fruits, leaves, and insects. They live together in companies, and never go alone when they wish to rob an orchard, or find their food. It seems as if they laid regular plans; for, as has been remarked, part of them stand to watch the approach of enemies, and part enter the field. They form a straight line, reaching from those within, to some place beyond which is a retreat for them.

35. When they are all arranged in due order, those in the orchard, near the trees, throw the fruit to those outside as fast as they can gather it. These pass it over to those nearest to them till the fruit is all nicely lodged in their hut or retreat. If the one who acts as

---

31. How does the ostrich compare with other animals? How does it defend itself when chased? 32. How do oysters defend themselves when attacked? 33. What is related of a certain pony? 34. What do monkeys possess? In what do they resemble man? How do they live when in a wild state? What course do they take when they wish to rob an orchard? Do they live alone or in companies? 35. How do they proceed when they are all arranged in the orchard? How are they warned of the approach of danger?

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sentinel perceives any one coming, he makes a loud noise, and they all run away; yet, even then, they will take some fruit under each of their arms or fore-paws, and also in their mouths.

36. They are mischievous animals, and annoy travellers exceedingly by throwing stones and sticks at them; and they will frequently follow them for some distance, when they are passing through the woods, by leaping from tree to tree. They are capable of forming strong attachments even with other animals, and then exhibit mildness, affection, and docility.

37. Monkeys and orang-outangs can be taught to do almost anything that we can. They ride on ponies, feed themselves with a spoon, and appear to understand what is said to them. The great naturalist, Buffon, speaks of one orang-outang which would present his hand when any one came to see him, and would walk along with great composure. He would sit down at the table, unfold his napkin, wipe his lips, and use a spoon or a fork to convey the food to his mouth.

38. When he was asked to drink tea, he took a cup and saucer, placed them on the table, put in the sugar, poured out the tea, and allowed it to cool before he drank it; all of which he performed by the signs or orders of his master. Another would, by signs, make the servant understand what he desired; if his wishes were not granted, he would bite him and throw him

---

35. What effect does the warning have? Do they run and leave all their fruit behind? 36. How do monkeys annoy travellers? What is said of their attachments? 37. What are some of the things that monkeys and orang-outangs can be taught to do? What interesting facts does Buffon relate about an orang-outang? 38. How did this animal drink his tea? In what way did he understand his master's wishes? What other facts can you relate about these animals?

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down. When he was sick he was bled, and ever afterward, when at all unwell, would hold out his arm to be bled, just as if he understood that he had been relieved by such an operation before. They sometimes carry water from the river in pitchers placed on their heads. Frequently when the pitchers are not taken off, they fall and break, at which the orang-outang moans greatly.

39. I might tell you many more interesting facts and anecdotes about the habits of animals. We find they seem almost to possess the intellect of human beings. This appearance of intelligence has been called, by nearly all physiologists, instinct. Yet when I speak of the elements of our own minds, you will see that animals possess some of these same elements; and I will then attempt to explain from what they arise.

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39. What do animals seem to possess? What is this called by physiologists?

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FAMILIAR LESSONS

ON

PHRENOLOGY,

DESIGNED FOR THE USE OF

CHILDREN AND YOUTH

IN

SCHOOLS AND FAMILIES.

ILLUSTRATED BY NUMEROUS ENGRAVINGS.

BY MRS. L. N. FOWLER.

THE MINDS OF CHILDREN—LIKE GRAINS OF MUSTARD SEED.

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PREFACE.

TO PARENTS AND TEACHERS:—

PHYSIOLOGY is at the foundation of all human science. A thorough knowledge of it is absolutely necessary to a full understanding of the mind, and the laws which regulate it. Physiology and Phrenology are, by nature, inseparably connected; hence, they should be studied, not separately, but in connexion with each other.

The general laws and principles of Physiology are explained in volume one; it is therefore the design of the present volume to present the functions of the mind in a clear and familiar manner, so illustrated and explained by numerous cuts and anecdotes, that it cannot fail to interest and instruct children. These two volumes are cheerfully recommended to parents and teachers to place into the hands of their children as a guide to SELF-KNOWLEDGE.

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PHRENOLOGY.

CHAPTER I.

THE BRAIN AND NERVOUS SYSTEM.

1. CHILDREN, you have learned something respecting the construction of your bodies. I will now tell you about your minds, your brains, or, in other words, the nervous system, which includes the brain, spinal marrow, and the nerves.

2. You all know that you have minds or souls; for you think, speak, and act; you are conscious when you have done right, and when you have done wrong; you are happy or unhappy; you cry and you laugh; you sing and you play; you run and you walk; what is it that prompts you to do all these things, and many more?

3. Some of you may say, it is my bones, or my muscles, my heart, my blood, or my stomach, which induces me to act and move. No, my dear children; it is true that we could not move without these bones and muscles, and that we could not live without a heart, stomach, etc.; but it is not these alone that prompt and direct all our movements.

What is the subject of chapter first? 1. About what will children now learn? What does the nervous system include? 2. What are all conscious of possessing? What are some of the evidences that we have souls or minds? 3. How would some account for these emotions? Are their ideas correct?

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4. The functions of absorption and circulation, which are carried on, as you have learned, by the heart, stomach, lungs, etc., exist also in all vegetables. The plant imbibes the air, draws it in by means of its leaves, and after the part has been taken that is good for its nourishment, it sends it out again. If *we* had powers no higher than plants, we should be as they are, mechanical beings only.

5. But we have something within us—a mind or a soul—that impels all our actions. As I have stated, whenever we wish to do anything, our mind speaks, as it were, and tells the muscle to perform the act. Our bones and muscles are like the machinery of a steamboat or railroad-car; they are always ready to serve us; but as the machinery of a boat will not move without steam, so the bones and muscles, which are mere instruments of motion, will not move, when we wish to do anything, without the aid of the mind.

6. Listen, and I will tell you how the mind acts. You will remember that I informed you that the bones of the head, or the skull, served as a protection to the brain.

7. This brain is the seat of the mind or soul, and perceives all the impressions that are made on various parts of the body. If the brain be injured, the body suffers. There have been many cases in which the skull was broken, and the brain disturbed; and in every

---

4. What functions have vegetables in common with human beings? How are these functions performed? What should we be if we had no higher powers than plants? 5. What impels our actions? What do our bones and muscles resemble in a steamboat? What is necessary in the boat beside machinery? What is necessary to produce motion beside bones and muscles? What are the bones and muscles? 6. What is the brain? What does it perceive?

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instance, the effects were much more serious than the most severe accidents would have been to any other part of the body.

8. Dr. Hayward relates the story of a beggar in Paris, who lost a part of his skull by an accident; the brain was slightly covered by its membranes, and he was accustomed to allow any one who would give him a small sum of money to press on this exposed part. When the pressure was made, he was always unconscious of what was going on around him, or where he was; but as soon as the pressure was removed, his consciousness was restored.

9. You have probably heard of persons who had been stunned or made insensible for some time, from having received severe blows or accidents. People frequently remain in this state for a length of time, but finally recover.

10. That the brain is of great importance to us, is evident from the fact, that though it is a small part of the body, yet it receives about a fifth part of all the blood, which passes into it by means of four large arteries. It is also covered by a very hard substance, called the skull, which renders it less liable to be injured by blows. The brain has a grayish color; it is not hard like bone, but is sometimes so soft that when it is taken in the hands it will run over the sides of them.

---

7. What relation is there between the brain and body? How do accidents on the brain compare with those on other parts of the body? 8. Relate the story of the beggar in Paris. What was the effect of pressure on the brain? What took place when the pressure was removed? 9. What is said of persons who have been stunned by receiving accidents? 10. From what do we infer the importance of the brain? How does the blood pass into the brain? What are some of the properties of the brain?

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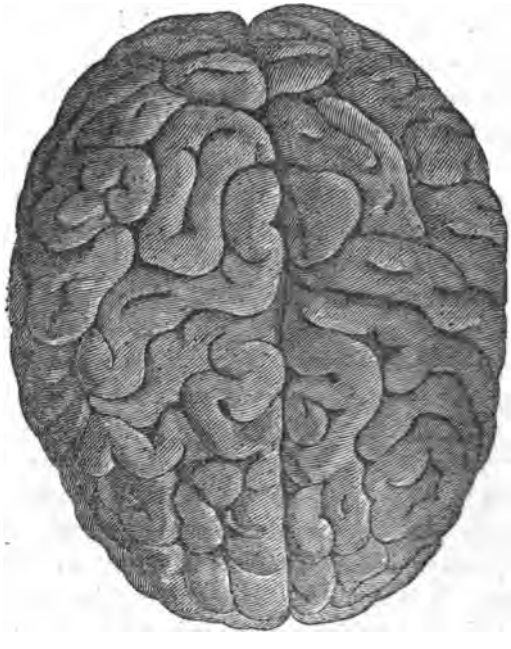
11. This cut represents the top or upper surface of the brain, showing its various folds or convolutions, each of which is supposed to perform different functions.



UPPER SURFACE OF THE BRAIN

You see by the cut that it has an irregular and wrinkled appearance, and appears just like a handkerchief when folded up, or like a piece of sponge, or scorched leather. The brain occupies considerable space when we take it in our hands, but is harder or more condensed, when it is inclosed by the bones.

---

11 What does the cut represent? What is the office of each fold of the brain? What is the appearance of the brain? What does it resemble? When does the brain occupy the most space?

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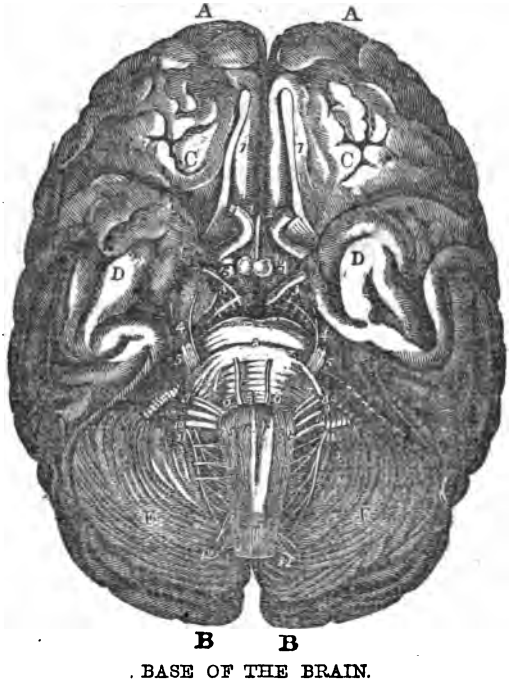
12. The color and appearance of the human brain are very similar to those in animals; yet it is considerably larger in proportion to the size of the body than that of almost any other animal. The human brain is four



BASE OF THE BRAIN.

[FF represents the cerebellum; AA represents the anterior lobe, or portion in which the intellectual faculties are situated; DD represents the middle lobe, containing the animal propensities; BB represents the posterior lobe, containing the domestic propensities.]

times as large as that of an ox; yet the body of the ox is five or six times as large as the human body.

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12. In what respects is the brain of man similar to that of animals? Is the size of the brain always in proportion to the size of the body? How do they compare in the ox and man?

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13. There are two great divisions of the brain, which are the cerebrum and the cerebellum. The large brain, or the cerebrum is the upper and front part; the smaller, or the cerebellum, occupies the back and lower part of the skull. These are again divided from the front to the back of the head into two parts—the right and left, called hemispheres. The brain has three coverings or membranes under the skull, which assist in protecting it.

14. There are a great many little prominences or clefts in the brain. It was in one of these projections, at the base of the brain, that Descartes, a great philosopher, supposed the soul to be situated; but most people at the present day think that the soul or mind is connected with the whole brain.

15. The spinal marrow is contained in the spine. It is a long white cord extending from the brain, and is covered by a firm and strong membrane of bone. It is well for us that it is thus guarded from injury; for our lives and happiness depend very much on its safety. If this be injured or broken, all the members below the injured or broken part become insensible and useless.

16. A great quantity of small white cords, called nerves, proceed from the lower part of the brain, just below the cerebellum and spinal marrow, as you will perceive by the following cut.

---

13. What are the great divisions of the brain? Which is the cerebrum? Which is the cerebellum? What other divisions are there in the brain? Explain the cut. 14. Is the surface of the brain smooth and uniform? Where did a certain philosopher suppose the soul to be situated? Where do most people at the present day place the soul or mind? 15. What does the spine contain? Describe the spinal marrow. Why is it necessary that the brain should be well guarded? 16. What are the nerves, and from what do they proceed?

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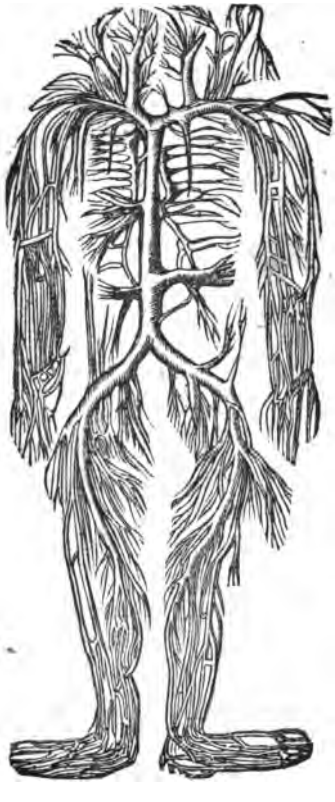
17. By this cut you can see the manner in which the nerves pass from the brain and spinal marrow. There



NERVOUS SYSTEM.

are ten or twelve pairs that proceed from the brain through the skull.

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17. Describe the cut. How many pairs of nerves proceed from the brain?

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The FIRST PAIR, called the *olfactory* nerves, proceed from the lower part of the brain, and are spread over the membranes of the nose, to enable us to smell.

The SECOND PAIR, called the *optic* nerves, or the nerves of sight, lead to the interior of the eye.

The THIRD, FOURTH, and SIXTH PAIR also proceed to the eye, but are merely connected with the muscles of the eye, and do not assist our sight at all.

18. The FIFTH PAIR, which has three branches, send one to the eye, others to the nose, the jaw, and the tongue. The nerves sent to the tongue are the nerves of taste.

The SEVENTH PAIR is called the *facial* nerve, and is sent to the muscle of the face.

The EIGHTH PAIR extends to the ears, called the *auditory* nerve, by which we hear.

The NINTH, TENTH, ELEVENTH, and TWELFTH PAIR pass to the lungs, stomach, tongue, and to the muscles of the neck.

These different pairs of nerves are represented in the cut by figures.

19. There is one very important nerve called the *great sympathetic*, formed by little cords which rise from several of the other nerves. It extends along down by the spine, enters the chest and stomach, and

---

17. What is the first pair called? Where do they proceed, and what is their purpose? What is the second pair called? Where do they proceed, and what is their purpose? Where do the third, fourth, and sixth pair lead? What is their use? 18. Where do the branches of the fifth pair lead? What are the nerves which are sent to the tongue? What is the seventh pair called? Where does it lead? What is the eighth pair called? What is its function? Where do the ninth, tenth, eleventh, and twelfth pair proceed? How are these different nerves represented in the cut? 19. What is the name of one of the most important nerves? Of what is this composed? Where is it situated?

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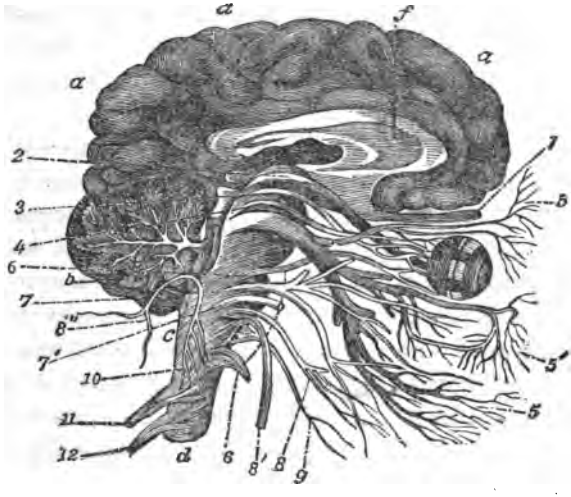
sends branches to all the important organs. This seems to be a connecting link between all the other parts of the body; so that when one part suffers, the others sympathize or suffer with it.



THE NERVES OF THE BRAIN

20. There are thirty nerves, called the spinal nerves that pass off on each side from the spinal marrow. These are distributed to all the muscles of the body. They extend in every direction; and if all the remainder of the body should be destroyed, except the nerves, *they* would still present the appearance of a living body, as you can see by looking at the cut on page 19, which represents the nervous system only, or our bodies just

19. Why is this nerve important? 20. How may nerves pass from the spine? What are they called? Where do they extend? How would the nerves appear if the rest of the body were destroyed?

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as they would appear if the skin, bones, and muscles, were removed.

21. So minute, extensive, and sensitive, are the nerves, that if we even prick our fingers, the sensation is immediately conveyed to the brain. It is not the *vein* which gives us pain, for this is destitute of feeling; it is not the *blood*, for this is also insensible; but it is the little, delicate, sensitive nerve that communicates the feeling to the brain as quick as thought.

22. The brain and spinal marrow are like two large rivers, and all the little veins are like so many little streams. It is well, therefore, that there is a connexion between the brain and the different parts of the body, and that the nerves do produce feeling and sensation. We might hold our hand in the fire till it was consumed, if there were no nerves to tell us when the fire was too hot: we might take food into our stomachs so hot that they would soon be destroyed, if we had no nerves in our mouths and throats to enable us to moderate the *temperature* of our food.

23. Though these nerves frequently cause us much pain and trouble, yet if they did not serve as restraints to us, we might injure our bodies every day, until they would be unable to sustain us. Let us, therefore, take care of them; for if *they* be injured, the parts or limbs where they are situated become useless or motionless.

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21. What takes place when we prick our fingers? Why is this effect produced? Why does not the vein give us pain? Why does not the blood give us pain? What is it that communicates sensation to the brain? 22. What are the brain and spinal marrow? What are the little nerves? What wise relation is there between the nerves and the brain? What would be the results if we had no nerves? 23. Of what are the nerves the cause? What service are they to us? Why should we take care of them?

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24. It is the nervous system which gives animals a higher rank than vegetables. The lowest animal has some nerves; and the more elevated the animal the more extensive and perfect is his nervous system, up to man, in whom it is found in perfection. Man is, therefore, universally acknowledged to be far superior, naturally, to the brutes, although he does not always *use* his powers to the best advantage.

25. It is and has been generally admitted, that the brain is the seat of the mind; but this *general* idea was not sufficient to satisfy every one. Dr. Gall, who lived in Germany nearly a hundred years since, was one of those who were not satisfied with this explanation. He was a very inquisitive lad when young, always looked around him, and thought about what he saw.

26. He noticed among his schoolmates that some of them were very generous and amiable, some selfish, some obstinate and cruel, others kind and affectionate. He found that one liked the study of arithmetic, another could commit to memory, and so on. When reflecting on these things the thought occurred to him that there is always harmony in the works of nature, and that there is a cause which produces every effect. He became convinced that there must be a cause why he could not recite his lessons as rapidly and as freely as some of the other boys. He was very observing, and

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24. What is the great difference between animals and vegetables? Has every animal nerves? Who has a perfect nervous system? Where does it place man in the scale of living beings? 25. What is the brain generally admitted to be? Did this general idea satisfy every one? Who was Dr. Gall? 26. What did he notice among his schoolmates? What did this lead him to do? What was the result of reflection? Of what did he feel convinced? Did he ascertain the cause of the difference between his schoolmates and himself?

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soon saw that all those scholars who could recite their ideas so well, had large full eyes.

27. When he attended the university he made the same observations, and reasoned somewhat in this way. The brain is said to be the seat of the mind; perhaps there is, therefore, a portion just behind the eyes, which enables all those in whom it is developed to learn their lessons, and repeat them when learned.

28. If this be correct, then, why are there not other portions for different functions of the mind. He noticed the head of everybody he saw; he visited schools and prisons; he collected all those who were particularly prone or inclined to cruelty, and found that *all* those had a little prominence over their ears. Then, he collected those who were interested in other things, and found that those resembled each other also in the shape of the head. He was finally satisfied that there is a distinct portion of the brain for every distinct faculty of the mind.

29. He became a distinguished physician. Being still deeply interested in his new discoveries, he and his pupil, Dr. Spurzheim, a very intelligent and scientific gentleman, lectured and travelled through many of the countries of Europe; and though many would not listen to them, yet *they* had not a shadow of doubt as to its truth.

30. They called this new science, *Phrenology*, which means a "discourse about the mind."

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27 How did he reason on this subject? 28. If one part of the argument was correct, what did he think of the rest? What course did he next take? What did he ascertain to be true of all those who were interested in the same things? What was his final conclusion? 29. What was his profession? Did he lose his interest in his new discoveries? Who was Dr. Spurzheim? How did Dr. Gall and Dr. Spurzheim attempt to extend their new science? 30. What did they call their science? What does Phrenology mean?

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31. The eyes are never in the back part of the head; neither is the nose, nor the mouth. We never see by the mouth, neither do we hear by the eyes; but there is a separate nerve for seeing, proceeding directly to the eyes, another for hearing to the ears, and these are always the same.

32. We say that the brain is divided into many different parts, just like the rooms of a house, called organs; and that different emotions, or faculties of the mind, are located or situated in these different parts. So wherever there is an organ in the brain, it always manifests itself in the same way, as much as the optic nerve always produces sight, and the auditory nerve hearing.

33. If one part of the brain be used more than the others, that part grows just as certainly as the right arm of the blacksmith becomes larger than the left when he uses it every day; for then there is more blood sent to sustain it. The same holds true with respect to every portion of the brain.

34. It may seem strange to you, children, that any one can tell by the shape of the head whether a man is good, kind, or benevolent; but if you will give me your attention, I will try to make it so clear that you will be able to understand it.

35. You know that one apple is larger than another.

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31. What is said of the features of the face? Do we always see and hear by the same nerves and organs? 32. In what way is the brain divided? What are situated in these different parts? What may we expect when there is an organ in the brain? 33. How does use affect the brain? Why does the right arm of the blacksmith become larger than the left? 34. What idea may appear strange to children? Can it be explained so as to be understood?

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so one head is larger than another. We judge *something* by the size, but as the smaller apple sometimes has a better and richer flavor than the larger, so some heads are very large in consequence of *disease*, as in case of hydrocephalus, where water collects in the brain, and swells it to a great and unnatural extent. The body must be in a healthy condition for the mind to act freely and vigorously; but more of this hereafter.

PLAN OR ARRANGEMENT.

36. As I have told you, all of nature's works are perfect; everything is arranged with order and system. Every bone and muscle is adapted to the purpose for which it is used. The head is in its right position; also the hands, arms, and feet. The nerves that pass to the face, eyes, etc., are not situated low down in the body, so that sensation has to travel a great distance, but they proceed immediately from the brain, etc., etc. We should also expect some order or method in the division of the brain.

37. When Dr. Gall first thought on this subject, and made his discoveries, he found first one organ in the back of the head, another in the front, and another at the side; but on considering them together, he saw that they were all arranged in groups or companies, all that had any resemblance being near each other, just the

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35. What influences our judgment? Is size always a correct test of the quality? In what cases is it not? In what state must the body be for the free exercise of the mind? 36. What plan or arrangement do we find throughout nature? What is said of all the bones and muscles? What is true of the nerves? In what should we also expect order and method? 37. Did Dr. Gall discover each organ in its regular order? What beautiful arrangement did he find when he considered them together?

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same as the stars in the heavens are arranged into groups.

38. I will first tell you the general division or arrangement, and will then explain the meaning of each one of the organs, and their application.

39. SOCIAL ORGANS.

1. AMATIVENESS,	4. INHABITIVENESS,
2. PHILOPROGENITIVENESS,	A. UNION FOR LIFE,
3. ADHESIVENESS,	5. CONCENTRATIVENESS.

40. SELFISH PROPENSITIES.

6. COMBATIVENESS,	9. ACQUISITIVENESS,
7. DESTRUCTIVENESS,	10. SECRETIVENESS.
8. ALIMENTIVENESS,	

41. SELFISH SENTIMENTS.

11. CAUTIOUSNESS,	13. SELF-ESTEEM,
12. APPROBATIVENESS,	14. FIRMNESS.

42. MORAL AND RELIGIOUS SENTIMENTS.

15. CONSCIENTIOUSNESS,	18. VENERATION,
16. HOPE,	19. BENEVOLENCE.
17. MARVELLOUSNESS.	

43. SEMI-INTELLECTUAL SENTIMENTS.

20. CONSTRUCTIVENESS,	22. IMITATION,
21. IDEALITY,	23. MIRTHFULNESS.
B. SUBLIMITY,	

44. PERCEPTIVE FACULTIES.

24. INDIVIDUALITY,	28. COLOR,
25. FORM,	29. ORDER,
26. SIZE,	30. CALCULATION,
27. WEIGHT,	31. LOCALITY.

38. What will be first considered? What will then follow? 39. Name the social organs. 40. Name the selfish propensities. 41. Name the selfish sentiments. 42. Name the moral and religious sentiments. 43. Name the semi-intellectual sentiments. 44. Name the perceptive faculties.

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32. EVENTUALITY,	34. TUNE,
33. TIME,	35. LANGUAGE.

45. REASONING FACULTIES.

36. CAUSALITY,	D. SUAVITY,
37. COMPARISON,	C. HUMAN NATURE.

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45. Name the reasoning faculties.

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CHAPTER II.

THE SOCIAL AND DOMESTIC CLASS.

THE smaller brain, the cerebellum, contains the first organ in the social group, Amativeness.

1. AMATIVENESS.

DEFINITION—Love and kindness between the sexes; a desire to marry, and preference for the society of the opposite sex.

LOCATION—This organ is located at the back of the head, behind the ears, and gives a fulness to the neck.

1. EVERY faculty of our minds, or function of our bodies, is given to us for a special purpose, which must be fulfilled to carry out the design of our Creator.

2. The organ of Amativeness gives all those kind feelings of love that man shows to woman. Little boys under its influences, love their mothers and sisters

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What is the subject of chapter second? Which brain contains the first organ? What is its name? What is the definition of Amativeness? What is its location? 1. What is said of every faculty of the mind and function of the body? 2. What feelings does Amativeness give?

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dearly; will try very much to please them; will like to wait on them and do them a great many little services; and as soon as they are old enough will be inclined to marry, that they may have some one whom they may love, and who will love them.

3. If girls have this organ large they will be very attentive to their fathers and brothers; will speak kindly, and be polite and amiable to them. This is an important organ, and should be cultivated. I have heard brothers speak harshly to their sisters; but it was only those who had not the feeling of love, which they would have had if this organ had been large.

4. A little girl once asked her brother to take hold of her hand, one morning when she was going to school, it being very slippery; but he said he could not stop, for he wished to go and play with the other boys. This little boy would not have spoken thus if he had loved his sister as he ought.

5. It is this organ which causes husbands and wives to love each other as long as they live. Old men and women seem to be more closely attached the longer they live together.

6. If this organ be perverted, or used improperly, it is the means of making men and women very unhappy, and very wicked. When you are older you will understand more about it, and will pay more attention to the right cultivation of it. It is represented in the cut by the little blind boy Cupid, with a bow and arrow.

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2. How is this organ shown by little boys? 3. In what way do little girls exhibit this organ? What feelings does it create between brothers and sisters? 4. Relate the story of the little girl. 5. What feelings does it create between husbands and wives? 6. What are the effects of the perversion of this organ? How is this organ represented in the cut?

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2. PHILOPROGENITIVENESS.

DEFINITION—Love of children, animals, pets, and horses.

LOCATION—Philoprogenitiveness is the second social organ, and is situated directly above Amativeness, in the back part of the head, and is number two in the Symbolical Head.

1. CHILDREN, when given to their parents, are very small babies. If there were no love for them, they would be neglected, and would suffer for want of proper care and attention. They are very helpless, and could easily be injured or killed, and require a great deal of time, care, and anxiety, to keep them alive and in health.

2. But the mother, if she has this organ largely developed in her head, loves her little child, and would not part with it, though she were required to devote *all* her time and attention to its care. She watches its

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What is the second organ of the social group? What is its definition? What is its location? 1. What is the size of children when given to parents? What would be the consequence if parents had no love for them? Why do they require much care? 2. What is the influence of Philoprogenitiveness on the mother?

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growth, physically and intellectually, with intense interest, and notices every little motion of its body, or emotion of its mind.

3. Think, children, how much your mothers and fathers are doing for you every day. The only anxiety or question that presents itself to their minds, is, what can I do for these little ones, that they be fed, clothed, and educated. They often sacrifice their own pleasures and enjoyments for the sake of their children.

4. Hence, for this reason, if for no other, you should requite the care and attention of your parents with love, obedience, and gratitude, and do all in your power to add to their comfort and happiness.

5. The mother, generally, has this organ larger than the father. This is a wise provision of nature, because she has more care of her little ones when they are not able to do anything for themselves.

6. There are some mothers—although I rejoice to say that the number is small—who feel it to be a burden to take care of and educate their children; but it is only those who have not this organ large in their heads.

7. Children show this organ in a great degree. The little girl loves and dotes on her doll-baby, enters into all its feelings—as she imagines—sympathizes with it, dresses it, places it in bed, and takes the same care of it that mothers do of their *real* babies. I have known

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2. What does she watch with interest? 3. What should children remember? What is the greatest anxiety of parents? What do parents often do for their children? 4. How should children requite the love and attention of parents? 5. In which parent is this organ the largest? Why is this fact a wise provision of nature? 6. Are there ever mothers destitute of this organ? What does it incline them to do? 7. Who beside mothers show this organ? In what way does the little girl show this on her dolls?

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little girls who had large families of dolls, and who gave each a different name. Sometimes, when they have no doll, they caress the little dog or kitten.

8. Boys show the action of this organ by their fondness for a horse; their desire to manage and to drive one; or they desire to play with rabbits, dogs, or something of the kind, to gratify their strong love of the young and tender. If a boy has this organ large, he is generally kind to his horse and other animals. Some little boys cry piteously when an animal which they have petted, and on which they have bestowed their affection, has died, or is lost.

9. A man in Schenectady, who was extravagantly fond of pets and children, had a very large bunch where this organ is situated; he very frequently went about the city with two little dogs in his overcoat pockets, and one in each hand; and was always surrounded by children.

10. Generally, you can very readily tell who has a love for little ones, by their conduct; and if you have a Sabbath-school teacher or day-school teacher who particularly loves you, he or she most certainly has a prominence in the back part of his or her head.

11. This organ is represented in the cut by a mother and father who are fondling and caressing their children; also by a cat who is playing with her kitten in one corner.

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7. Whom do they caress if they have no dolls? 8. In what way do boys show this organ? With what feelings do boys regard animals when they have this organ large? What effect does the loss of a petted animal have on them? 9. In what way did the man in Schenectady show this organ? 10. What can we generally tell by the conduct? What have all those teachers who love their pupils? 11. In what way is this organ represented in the cut?

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12. In my chapter on instinct, I told you that animals seemed almost to possess the intelligence of human beings—a something generally called instinct. When we say that instinct prompts all their actions, we cannot tell whence this instinct arises.

13. Man possesses a brain which prompts all his actions; and as all animals have some brain, therefore it is reasonable to say that their actions are the result of it. By careful observation it has been proved that as far as the brain of animals is developed, they exhibit the same traits and peculiarities that we do; and it has also been proved that the different portions of the brains of animals produce different actions.

14. The monkey is particularly attached to her young; and she has a marked prominence in her skull, immediately above Amativeness; and so of all other animals that have a particular care for their young.

15. Do not forget the name of this organ, although it is a long one, but always remember that *Philoprogenitiveness* gives love for young.

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12. What do all animals seem to possess? Why are not we satisfied in saying that instinct prompts the actions of animals? 13. What does the brain of man do? Have animals a brain? What do we then infer? What has observation found to be true? What is true of different portions of the brain of animals? 14. What is said of the monkey in relation to this organ? 15. What must children not forget? What does Philoprogenitiveness mean?

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3. ADHESIVENESS.

DEFINITION—Fondness for friends; attachment; desire to live in society, and to be surrounded with friends.

LOCATION—Adhesiveness is situated on both sides the back head, just above and outward of Philoprogenitiveness.

1. You see by the cut that two friends are represented with their arms around each other, as if engaged in social conversation. This is what Adhesiveness means; or in other words, when we see persons very fond of having warm-hearted friends to associate with them, and very desirous of companions, we shall find this organ large in their heads.

2. I have often seen little girls, who choose some particular ones among their schoolmates, confide to them their little joys and sorrows, and walk to and from school together. I have seen boys, also, walk in the street with their arms twined around each other's necks, and always in each other's society. They say they love each other very much, and I am sure that

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What is the definition of Adhesiveness? What is its location? 1. What does the cut represent? What feeling does Adhesiveness incite? 2. In what way do little girls exhibit this organ? In what way do boys exhibit this organ?

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their happiness is thus increased. I presume all persons have some one whom they call their friend.

3. It is right, children, to exercise this organ. We should be very cold-hearted, if, living as we do, surrounded by our fellow-beings, we felt no interest in them, and did not wish to associate with them. Suppose, in attending school, you should form no attachments with your schoolmates; recess would not be welcomed, as it now is, as a fine time in which to play and have sport. You would no more desire to sail your kite, to jump the rope, or to amuse yourselves in a great many other ways as you now do, if you had not kind friends to share your sports, and to engage with you in the frolic.

4. If men and women had not this organ large, we should not have as many handsome, thickly-settled villages as we now have. People would live alone in the wilderness, or in the thick forest; but now, when a family moves to a new country, where they are compelled to cut down the trees for room to build their house, another family goes, and then another, till what was once a forest of trees becomes in a few years a large village, with houses, stores, churches, etc., etc.

5. Yes, children, make friends; treat them kindly, and you will be more happy than if you lived alone, with no ties of love and affection.

6. This feeling of attachment is also seen among

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2. What reason do they give for their conduct? What do most all persons have? 3. Why is it right to exercise this organ? What would be the effect if there were no adhesiveness among scholars? 4. What would be the result if men and women had no adhesiveness? In what way would people live? What takes place now when a family moves to a new country? 5. Then what should all children do? 6. Is this feeling of friendship confined to man alone?

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animals. They rarely ever live alone. Birds live and fly in companies. One bee never lives alone in the hive, but hundreds swarm together. One beaver never builds his hut alone, but a company of beavers associate, and each performs his particular part. Sheep skip and play together in the open field. This is true of almost all animals, and they, with us, have a little prominence on their skulls, caused by the development of the brain, which we call Adhesiveness.

7. Dogs have a large organ of Adhesiveness, and they evince the most devoted attachment to their masters. A man had a dog that was his constant companion by night and by day. He went with him when he hunted, and when he fished, and was always at his side. The man was taken sick and died. The dog would not leave his bedside, and after they buried his master, refused to take any food. In about a week he was missing, and no one could tell where he had gone, till some one chanced to pass the grave-yard, and saw the poor dog dying, stretched on the mound where his master had been laid, as is represented in the following cut. This was a striking proof of true and sincere affection.

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6. How does the bee show this feeling? How does the bird show attachment? The beaver? Sheep? What have all these animals that exhibit this feeling? 7. Relate the anecdote of the dog. What are his particular characteristics?

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4. INHABITIVENESS.

DEFINITION—Love of home; attachment to one place, and unwillingness to change frequently.

LOCATION—Inhabitiveness is situated between the two organs of Adhesiveness, directly above Philoprogenitiveness.

1. You have all heard, children, the song, "Be it ever so lowly, there's no place like home." There is a separate and distinct part of the brain which gives this feeling. When it is large, the spot which the person calls his home is to him the dearest spot on earth.

2. It is this feeling that makes the Irishman's poor and lowly hut, mostly made of mud and logs, pleasant and agreeable to him. The winds may blow around his dwelling; yet he cares not for the storm, if he and his friends are in their home, miserable though it may be.

3. This feeling is sometimes so strong, that persons are not contented unless they are at home. Especially

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What is the definition of Inhabitiveness? Where is its location? 1. What feeling does another part of the brain give? What is its influence when large? 2. In what way does this organ affect the Irishman? When does he forget the winds and the storm? 3. What state of mind does it produce when very strong?

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do we love the first home where we sat on our mother's lap, shared in her endearments, and where our first juvenile sports were enjoyed. We experience emotions that are then impressed on our little tablets, never to be forgotten.

4. How many there are—and I suppose the same will be true of you, children, if you live long enough—who leave their father's dwelling and are absent many years, and live many hundred miles from their parents, yet have a lingering desire to revisit the place of their nativity, and examine every nook and corner. They love to wander by the winding streamlet, where they sailed their little boats; they love to walk the very street where they rolled their hoop, and they forget that they are old.

5. It seems to them that the trees are clad with the same leaves which pleased and sheltered them from the sun when children; the house where first their tiny infant feet pattered along, seems sacred; and as they retrace their steps to the mounds that cover the mortal remains of friends dear to their hearts, with tears of affection they exclaim that there is no spot like their childhood's home; no place so dear as the place of their nativity.

6. The old man whom you see in the cut, appears happy, and why?—because he is at home. The cold may whistle through the old roof, but it matters not to him, for he can sit at his own fireside at home, or under

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3. What do we especially love? What is said of the force of these early emotions? 4. What desires have many persons who leave their homes when young? What does it delight them to do? 5. With what feelings do they regard the spots where they passed their early years? 6 Why does the man in the cut appear happy?

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the shade of the tree that has grown old with him. It is pleasant for a family to gather around the warm fire, on a cold winter's night, and feel that all are at home.

7. You may have heard about Switzerland. It is a great many miles from New York. The people who live there are called Swiss. It is said that if these people are away from their country, and hear a Swiss air or tune peculiar to their nation—and they have them, the same as America has "Yankee Doodle," and "Hail, Columbia, happy land,"—it so stirs up and excites their minds, that it is said that sometimes, even when about to engage in battle, they are obliged to lay down their arms and return home to Switzerland.

8. Those persons who are always home-sick when they are away from home, have a large organ of Inhabitiveness.

Those who can go when and where they please without feeling sad and lonely, have the organ small, like a little boy in Newark, who runs away from his home whenever he can, and causes his parents much anxiety, and does not love them and his home as he ought.

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6. What is a source of great pleasure? 7. Where is Switzerland? What are the people called? What interesting fact is related about these people when away from their country? 8. What causes some to be always "home-sick" when away from home? What produces the opposite state of mind? Relate the fact of the little boy in Newark.

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A. UNION FOR LIFE.

DEFINITION—Desire to pair, to unite for life, and to be constantly in the society of the loved one.

LOCATION—Union for Life is situated on each side of Philoprogenitiveness, between Amativeness and Adhesiveness.

1. THOUGH we have the organ of Amativeness, which leads the brother and sister to love each other, and produces love between the opposite sexes that they marry and live together, yet we also need that portion of the brain called Union for Life, which lies close by its side.

2. This is a more elevated faculty than Amativeness; for persons having only the latter, may marry, yet they often live unhappily when together, and even wish to separate their interests; but if Union for Life be large, the persons always adhere to each other through weal or woe, are desirous of sharing all their joys and sorrows, and of being constantly in each other's society.

What is the definition of Union for Life? What is its location? 1. What do we need beside Amativeness? 2. How do these organs compare with each other? Explain the difference.

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3. All birds that pair have this portion of their brain developed, and those who do not, have a deficiency of this organ.

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5. CONCENTRATIVENESS.

DEFINITION—Connexion of thought and feeling; inclination to fix the mind on one subject till it is accomplished or finished.

LOCATION—Concentrativeness is situated immediately above Inhabitiveness.

1. How often children become impatient! Here is Clara: her mother has given her some sewing, and she said or wished to say, "that she has not patience to do it." She does not fix her mind on it so much that the little muscles which lead to her hands come to her aid.

2. Said William, "I cannot do this sum in my arithmetic lesson. I've tried, and I've tried, but all my efforts are useless;" when perhaps he did not recollect that he was thinking all the time about sailing his kite, or what he should do the next recess. "No," said he again, "I

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3. In what way is this organ developed in birds? What is the definition of Concentrativeness? What is its location? 1. What is a very common thing among children? How did Clara show her impatience? Why does she not succeed? 2. How did William show his impatience?

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cannot possibly do it," and down went his slate and pencil, and he shut his book very impatiently.

3. "Well, I never did see how hard and difficult my geography lesson is. I don't see why my teacher expects me to find out all these little places on the atlas," said Harriet, one day. Little Harriet did not know why she could not learn her lesson; but the fact was, that she was nearly all the time thinking about one of the scholars who sat by her side, and very often her eyes were turned toward a window near her.

4. Listen, children, and I will tell you why she did not succeed. She did not fix her attention; she did not try to send away all thoughts but those connected with her lesson. Her thoughts were scattered everywhere. Precisely the same with Clara and William; if they had thought of nothing but their respective duties, they could have performed them very easily.

5. Does a man when he is building a house, make a window one day, then work a little on the barn, and then think he will transplant or set out a tree?

6. Suppose, when he was putting the shingles on the roof, he should think what a fine day it would be to go and ride, and so leave his work; do you think he would ever finish that work? No, indeed; but he must give his whole attention to his business if he wishes success. When he is plastering he should plaster till he has finished. When he is painting he should paint; and in this way only can he accomplish all he wishes.

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3. How did Harriet show her impatience? What was the reason that she could not learn her lesson? 4. Why were not the efforts of these children successful? Would they have succeeded if they had confined their thoughts to their duties? 5, 6. Illustrate the want of attention by the man building his house, etc.? What course is he obliged to take if he wishes to meet with success?

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7. Dr. H.'s son, a little boy six years old, will sit down, of his own accord, and read stories in a book for four hours, without any interruption, or being in the least fatigued. He has a very large organ of Concentrativeness.

8. If a person has too much of this organ, he will be prosy. He would never finish or complete his story. When he played, he would desire to play always; when he studied, he would desire to study always; nevertheless, children, if you wish to succeed in what you attempt, if you wish to become learned men and women, you must learn while young to fix your attention on what you do. You must learn to engage your thoughts in whatever you undertake. When you study you must not think of play; when you play think only of play, for the time being; when you are at church, think only of what you hear said.

This is what all who have ever become great and good men have done.

9. The gentleman in the cut is so much absorbed in his studies, that he does not even perceive that his arm-chair is on fire, and that the flames are gathering around him, and probably would not have perceived it, if he had not been aroused from his abstraction. I would not advise you to cultivate the organ to such an extent as this, although I would advise you all to learn patience, and to fix your attention.

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7. In what did Dr. H.'s son show large Concentrativeness? 8. What are the results of having too much of this organ? What is necessary for all to do who wish to become learned, or to succeed in what they undertake? 9. How is Concentrativeness represented in the cut? Did this gentleman have too much or too little of this organ? What must all children learn?

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10. I have now finished the description of those which are called the social or domestic organs. You have learned that we can love our brothers and sisters with warm affection; that husbands and wives can love each other devotedly; that love will spring up in the heart for the little precious infants committed to our care; that we can draw friends around us, and cherish their memory with devotion; and that we can all gather around our happy firesides, and enjoy the sweets of quiet home.

11. Children, if we cultivate these qualities properly, life will be a source of joy and happiness, however unpleasantly we may be situated; but without these feelings of love and kindness, our life is but a blank; for we are not aware of one half of the pleasure which we are capable of enjoying.

12. The social organs are the *foundation* on which all the others are built; and it is of vast importance in building that the corner-stone or the foundation-wall be firm and correct.

13. These organs are in a group together. If it were not so, the order and beauty of the whole would be marred.

14. Think, children, on the preceding remarks, and as you become older, strive to cherish proper social feelings; for with them we have warm hearts; without them we are cold and selfish beings.

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10. What things have we learned from the description of the social organs? 11. What arises from the proper cultivation of these social faculties? What is the result if we have no friendship? 12. How do the social organs compare with the others? What is very important in a building? 13. Are these social organs scattered over the brain? What would be the effect if this were the case? 14. What should all children strive to cherish? Why?

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CHAPTER III.

SELFISH PROPENSITIES.

6. COMBATIVENESS.

Power—Boldness; resolution; angry and contentious spirit.
Location—Combativeness is situated just behind the top of the ear, on both sides of the head.

1. You will all say that the two boys in the cut have been fighting or quarrelling. I have seen *boys* and *dogs* quarrel too. There are some boys who are continually cross and angry. Whether you speak to them kindly or not, they will not heed you, but will say, "Get away," "I won't," and a great many other words which I call

What is the subject of chapter third? What is the definition of Combativeness? What is its location? 1. In what way are two boys represented in the cut? How do some boys always feel? Does kindness seem to affect them? What naughty replies do they make?

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bad language, or at least such as is improper for them to use, especially to their parents.

2. I hope that there are not many children who say such naughty things; still, as I have previously remarked, I have known similar cases. This is one way, in which Combativeness shows itself, and is a wrong way. Another way:—do you see that little boy running to school every morning? he does not stop for the heat, or the cold, the rain, or the snow; but he is always at school when it commences.

3. John's father said to him one day, "John, I have some hard logs to be sawed. I wish you to be a smart boy. What do you think about trying to do this for me?" "Well, father," answered John, promptly, "I will *try*, and I *think* I can succeed." John went to work, sawing, and sawing. He thought to himself, "these are in reality quite tough logs to saw; I wonder where father got them; yet I am determined to accomplish it if I possibly can," so he tugged away, till finally the logs fell down on each side of him, and he felt very happy that he had made the attempt. His father, who stood near the window looking at him, rejoiced that he had so smart and active a son. He had chosen these hard logs in order to teach his son to overcome difficulties.

4. This is the course that we should pursue when we have any task to do; we should set ourselves to work in earnest, and resolve that we will *try*, at least, if we do no more.

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2. What produces that state of mind? Is this a right way to exercise this organ? What is another way? 3. What request did John's father make to him? What was John's answer? What were some of his thoughts while he was at work? How did he finally succeed? What were the feelings of his father? 4. What should be our course when we have any thing to perform?

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4. INHABITIVENESS.

Definition—Love of home; attachment to one place, and unwillingness to change frequently.

Location—Inhabitiveness is situated between the two organs of Adhesiveness, directly above Philoprogenitiveness.

1. You have all heard, children, the song, "Be it ever so lowly, there's no place like home." There is a separate and distinct part of the brain which gives this feeling. When it is large, the spot which the person calls his home is to him the dearest spot on earth.

2. It is this feeling that makes the Irishman's poor and lowly hut, mostly made of mud and logs, pleasant and agreeable to him. The winds may blow around his dwelling; yet he cares not for the storm, if he and his friends are in their home, miserable though it may be.

3. This feeling is sometimes so strong, that persons are not contented unless they are at home. Especially

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What is the definition of Inhabitiveness? Where is its location? 1. What feeling does another part of the brain give? What is its influence when large? 2. In what way does this organ affect the Irishman? When does he forget the winds and the storm? 3. What state of mind does it produce when very strong?

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do we love the first home where we sat on our mother's lap, shared in her endearments, and where our first juvenile sports were enjoyed. We experience emotions that are then impressed on our little tablets, never to be forgotten.

4. How many there are—and I suppose the same will be true of you, children, if you live long enough—who leave their father's dwelling and are absent many years, and live many hundred miles from their parents, yet have a lingering desire to revisit the place of their nativity, and examine every nook and corner. They love to wander by the winding streamlet, where they sailed their little boats; they love to walk the very street where they rolled their hoop, and they forget that they are old.

5. It seems to them that the trees are clad with the same leaves which pleased and sheltered them from the sun when children; the house where first their tiny infant feet pattered along, seems sacred; and as they retrace their steps to the mounds that cover the mortal remains of friends dear to their hearts, with tears of affection they exclaim that there is no spot like their childhood's home; no place so dear as the place of their nativity.

6. The old man whom you see in the cut, appears happy, and why?—because he is at home. The cold may whistle through the old roof, but it matters not to him, for he can sit at his own fireside at home, or under

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3. What do we especially love? What is said of the force of these early emotions? 4. What desires have many persons who leave their homes when young? What does it delight them to do? 5. With what feelings do they regard the spots where they passed their early years? 6 Why does the man in the cut appear happy?

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3. All birds that pair have this portion of their brain developed, and those who do not, have a deficiency of this organ.

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5. CONCENTRATIVENESS.

DEFINITION—Connexion of thought and feeling; inclination to fix the mind on one subject till it is accomplished or finished.

LOCATION—Concentrativeness is situated immediately above Inhabitiveness.

1. How often children become impatient! Here is Clara: her mother has given her some sewing, and she said or wished to say, "that she has not patience to do it." She does not fix her mind on it so much that the little muscles which lead to her hands come to her aid.

2. Said William, "I cannot do this sum in my arithmetic lesson. I've tried, and I've tried, but all my efforts are useless;" when perhaps he did not recollect that he was thinking all the time about sailing his kite, or what he should do the next recess. "No," said he again, "I

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3. In what way is this organ developed in birds? What is the definition of Concentrativeness? What is its location? 1. What is a very common thing among children? How did Clara show her impatience? Why does she not succeed? 2. How did William show his impatience?

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A. UNION FOR LIFE.

Definition—Desire to pair, to unite for life, and to be constantly in the society of the loved one.

Location—Union for Life is situated on each side of Philoprogenitiveness, between Amativeness and Adhesiveness.

1. Though we have the organ of Amativeness, which leads the brother and sister to love each other, and produces love between the opposite sexes that they marry and live together, yet we also need that portion of the brain called Union for Life, which lies close by its side.

2. This is a more elevated faculty than Amativeness; for persons having only the latter, may marry, yet they often live unhappily when together, and even wish to separate their interests; but if Union for Life be large, the persons always adhere to each other through weal or woe, are desirous of sharing all their joys and sorrows, and of being constantly in each other's society.

What is the definition of Union for Life? What is its location? 1. What do we need beside Amativeness? 2. How do these organs compare with each other? Explain the difference.

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cannot possibly do it," and down went his slate and pencil, and he shut his book very impatiently.

3. "Well, I never did see how hard and difficult my geography lesson is. I don't see why my teacher expects me to find out all these little places on the atlas," said Harriet, one day. Little Harriet did not know why she could not learn her lesson; but the fact was, that she was nearly all the time thinking about one of the scholars who sat by her side, and very often her eyes were turned toward a window near her.

4. Listen, children, and I will tell you why she did not succeed. She did not fix her attention; she did not try to send away all thoughts but those connected with her lesson. Her thoughts were scattered everywhere. Precisely the same with Clara and William; if they had thought of nothing but their respective duties, they could have performed them very easily.

5. Does a man when he is building a house, make a window one day, then work a little on the barn, and then think he will transplant or set out a tree?

6. Suppose, when he was putting the shingles on the roof, he should think what a fine day it would be to go and ride, and so leave his work; do you think he would ever finish that work? No, indeed; but he must give his whole attention to his business if he wishes success. When he is plastering he should plaster till he has finished. When he is painting he should paint; and in this way only can he accomplish all he wishes.

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3. How did Harriet show her impatience? What was the reason that she could not learn her lesson? 4. Why were not the efforts of these children successful? Would they have succeeded if they had confined their thoughts to their duties? 5, 6. Illustrate the want of attention by the man building his house, etc.? What course is he obliged to take if he wishes to meet with success?

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or by exhibiting bad tempers when you are young; for all those bad men and women who finally die on the gallows, or are sent to our prisons, were permitted, when young, to indulge these bad feelings till they had committed some crime for which they were arrested and punished.

14. Gibbs, the pirate, when a boy, amused himself with dog-fighting, and all other kinds of rough plays, to such a degree, that the coarser feelings of his nature obtained the ascendency over the higher, better, and moral.

15. You may say that if you have this organ, you *must* use it, and so cannot help yourself. But this is not so; for although some are naturally more inclined to deeds of wickedness or kindness than others, yet all *can* restrain their passions if they wish, and *should* strive against the indulgence of their wicked feelings.

16. I know a little boy who was naturally inclined to destroy and trouble all the cats, dogs, etc., he saw. His parents were aware of this propensity, and explained to him that it was wrong to torture the innocent merely for his own pleasure, and often conversed with him on this subject. This produced so good an effect, that in the course of a few months or years, his whole disposition was changed, and he is now one of the kindest-hearted boys I ever saw, and is beloved by all who know him.

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13. What is said of the youth of all bad men and women? 14. What were some of the amusements of Gibbs when a boy? How much did they influence him? 15. What might some say in regard to this organ? Is this the case? What is true in regard to these things? 16. Relate the anecdote of the little boy? What efforts did his parents make, and did they succeed?

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8. ALIMENTIVENESS.

DEFINITION—A desire for food; appetite; gluttony.

LOCATION—Alimentiveness is situated immediately in front of Destructiveness, on each side of the head.

1. As I have told you previously, every faculty is given to us for some specific end. We have eyes for seeing, ears for hearing, and a nose for smelling; and when that portion of the head in front of the ears is swelled or is large, then we say people are fond of eating, and enjoy their food.

2. In the cut, you will see two men very busy with their knives and forks, etc. They are eating and drinking; and this is what the greater part of our people do most of the time. They scarcely think of anything excepting what they are to eat. It is important that we eat; for if we did not, we should have no nourishment or vitality in our bodies, and we could not live. Ali-

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What is the definition of Alimentiveness? Where is it located? 1. For what is every faculty given to us? What are examples of this? When do we say people enjoy their food? 2. What does the cut represent? How common is this practice? Why is it important that we eat? What assistance is Alimentiveness to us?

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mentiveness causes or requires us to take food, to take drink; and this is right.

3. Sometimes, however, when this organ is too large, or has been unnaturally excited, it leads those persons to "eat, drink, and be merry," and often, even to intoxication. This is very wrong.

4. The perversion of this faculty leads to more misery and unhappiness than almost any other thing. How many hearts are saddened, how many happy homes are made desolate, because the father or brother has yielded to the appetite, which asks for "Rum, rum," and is not satisfied till rum is obtained. The perversion of this faculty, also, leads men to smoke cigars all day long, and chew that vile stuff, tobacco, not thinking how needless the *expense* is, and how disgusting the habit is to all around them.

5. Boys think they are almost men when they can get a piece of cigar to put in their mouths; and though it invariably makes them sick, yet they will take another piece as soon as they can get one.

6. Children, *you* have not yet formed this habit, therefore I would earnestly beseech you never to defile your mouths by such a poisonous and nauseous weed as tobacco, in any form. It is not only an expensive and idle habit, but it also exhausts the saliva which you need in the mastication of your food, and thus injures your health. There are hundreds of young men who

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3. When should we not obey this organ? To what does it sometimes lead? 4. What is said of the perversion of this faculty? In what ways do men pervert this organ? What is not regarded? 5. What ideas have boys in reference to the perversion of this faculty? 6. What caution is given to children, and why? What are the effects of its perversion? What is a very common remark among those who have formed these habits? Relate the case of the young man.

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would give all the money they possess, if they could free themselves from this habit. One young man in this city has smoked to such an extent, that he is so nervous that he can neither read, study, nor enjoy himself in any way.

7. Some drink tea and coffee to excess. They say that it does them no harm, and that they cannot live without it. They take it, they say, as a stimulant, or to excite them. In reality it *does* excite their *nerves*, and their minds become weakened by it. It is better to drink clear, cold water; the drink which nature has provided for us.

8. It is pleasant for us to enjoy food, and it is well that it is so; for if it were not the case, many would become so much absorbed in their different pursuits that they would forget to eat, and would not take as much food as their nature required; but it is equally an evil for us to eat all the time, as children frequently do; as I told you in a previous lesson. If you value your health and life, therefore, you must beware of eating too much when you are at the table.

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7. In what way do others pervert this faculty? What is their excuse? What is the truth in the case? What drink is preferable? 8. What is a source of pleasure? What are its advantages? What is an evil? Of what should all be careful?

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9. ACQUISITIVENESS.

Definition—Desire to acquire and lay up property; a hoarding disposition.
Location—Acquisitiveness is located above Alimentiveness, and part of Destructiveness.

1. If you look at the man in the cut, at the head of this organ, you will see that he is very much occupied in casting up his accounts, and counting over his money. He has dropped some pieces and the lad is looking very narrowly for them, with a light, as if unwilling to lose the smallest piece.

2. What is it that prompts him to be so very careful to see that he has every copper that belongs to him? It is because he makes a god or idol of his money. The people in heathen countries have no Bibles, and have no knowledge of God and their obligation to him; but they make images of wood, stone, and clay, and fall down before them, and worship them as their gods. The man

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What is the definition of Acquisitiveness? What is its location? 1. What does the cut represent? 2. What is his ruling motive, and what does it prompt him to do? What is the custom among the heathen? In what way does the man in the cut resemble the heathen?

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in the cut, thinks as much about his money, and would feel as sorrowful if he were to lose it, as a heathen man would, if his gods, which he made with his own hands, were burnt and destroyed.

3. This organ of Acquisitiveness is a very useful organ as I will show you; yet it is very frequently perverted.

4. People of all ages have exhibited the development of Acquisitiveness. Parents show it by acquiring property to support their families, and to give to others; children show it by gathering a great many playthings together to call their own, and in trading with each other; the miser shows it by hoarding his money, and by permitting his family to suffer without the comforts of life. There have been miserable creatures—curses rather than blessings to their country—who lived ragged, cold and hungry, and perhaps died from want, and left thousands of dollars to their relations, who rejoiced at their death.

5. Look at the cut at the end of this organ, and you will see an old man stretched on a pallet of straw. His enjoyments through life consisted in collecting all the money he could obtain; not that he might have the comfort and luxuries of life; not that he might be able to purchase *books* and *knowledge;* not that he might make his *friends* and *family* happy by spreading cheerfulness around the social board: no! his ACQUISITIVENESS was HIS God; he lived on dry crumbs of bread

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3. What is said of this organ? 4. How common is this organ? In what way do parents show its development? In what way do children show it? In what way does the miser show it? What can you say of such persons? 5. What does the cut at the end of this organ represent? Describe the miser? In what way did he show his ruling passion?

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that the dogs would scarcely touch, wore ragged clothes, suffered his beautiful daughter to waste away her life by her exertions to support herself and him; and then, in the silent watches of the night, when all of God's creatures should have been at rest, he would hug his bag of gold to his bosom, count over his money, and rejoice that his gains were so great.

6. And when sick, and on his death-bed, he would have no friend near him but his gold, and died with his bag in his hand and his drawer of notes near his bed. Yes, died alone, with no soft hand to wipe away the cold sweat of death, or to cheer his spirit as it left its clayey tenement. His affections, his whole interests were absorbed in the one great idea—LOVE OF MONEY.

7. When children feel unhappy because they do not receive the largest amount of playthings, they have so much of an acquiring disposition, that it becomes selfishness; they wish everything for themselves alone, without sharing it with their mates or companions. Such selfish children will never be loved or respected by any one.

8. Another story to illustrate Acquisitiveness: Mr. A., who lived in M. sent some cherries by a gentleman to the town of B., for sale. When the gentleman returned, he called on Mr. A., and delivered to him the proceeds of the sale, and said, "This is your due as near as I can make the change, being within half a cent;" hearing which, Mr. A. replied, "Hem! I s'pose the children

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5. In what way did he spend his nights? 6. What is said of his sickness and death? What was his great ruling passion? 7. In what way are children frequently selfish? What do they desire? Are such children happy? 8. Relate the anecdote of Mr. A. and the old gentleman.

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will expect their full dues, as the cherries belonged to them." "Well," said the gentleman, "I am perfectly willing they should have all; if I could possibly make nearer change I would." "Hem!" responded Mr. A., "I s'pose they will expect the full amount of the cherries." "Well, sir, we will have no more words about it; you shall have it:" and, suiting his action to his word, he severed a cent with an axe, and handed one half to him. The old gentleman eagerly took it, and with an air of delight and satisfaction, put it in his pocket, saying, "It will do to make rivets."

9. This old gentleman had large and perverted Acquisitiveness. He was an old miser, and hardly lived comfortably. He was not beloved by any one, though he was very wealthy, and might have done a great deal of good with his money.

10. Some kinds of acquisitiveness are right. It is proper for fathers to acquire property, to enable them to support their families; it is proper for us all to be economical, and not waste anything; it is perfectly proper for us to acquire books and instruction; but it is too frequently perverted.

11. I have known some little girls to lift the cover of the sugar-bowl slyly, and take lumps of sugar when they ought to have asked their mothers for them. Some children take cents, apples, and nuts, whenever they can. They also take each other's marbles and playthings without permission.

12. THIS IS STEALING; when we steal, it is because

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9. What was the character of the old gentleman? What should he have done with his wealth? 10. What kinds of acquisitiveness are right? 11. What do little girls do sometimes? What should they always ask?

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we love to acquire; and if children steal *small* things when they are *young*, they will be very likely, when older, to take larger and larger things, till they become so much accustomed to it, that they will break into stores, and thus subject themselves to imprisonment.

13. If you take an apple, or a few nuts, from a stand in the street to-day, when the owner is not looking at you, to-morrow you may take something more valuable. I shall tell you more of the evil consequences of forming habits of this kind, when I explain to you what the conscience is.

14. One word more I have to say to you on this organ of Acquisitiveness; be willing to share your sweetmeats and playthings with your brothers and sisters; avoid stinginess and a hoarding disposition, yet be not wasteful or squander money foolishly.

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12. What are the above practices? Why do persons steal? Why should children be very careful not to take small things when they are young? 13. Is it wrong to take an apple or a nut? To what may it lead? Under what head will this be more fully explained? 14. What should all children be willing to do? What should they avoid?

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10. SECRETIVENESS.

DEFINITION—Desire to conceal or secrete; to evade; or to deceive.
LOCATION—Secretiveness is located above Destructiveness, on both sides of the head.

1. You see in the cut, that the cat is creeping very slyly to catch her mouse. Nature furnishes her with something which is generally called instinct, that teaches her just what to do in order to get her prey. She knows that it would not be a very wise plan to run along mewing; she is very careful not to make a noise, lest she should frighten the mouse, but conceals herself as much as possible, while the mouse comes out after something. O that secretive little pussy, how she looks out of the corners of her eyes, as the mouse moves around the room! If we could look at her head, we should find that there is a large piece of brain on each side of the head, just above Destructiveness.

2. The spider and opossum have both broad heads;

What is the definition of Acquisitiveness? Where is it located? 1. Explain the cut? In what way does she proceed? What does nature teach her? How does the cat look? What should we be able to find in her head? 2 What is said of the spider and oppossum?

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and in my chapter on instinct, I told you that they were both cunning and deceptive in their nature.

3. Just so secretive some children are, who look all around them, to see if any one is looking at them. "Now, don't you ever tell anybody if I will tell you something very privately," said Harriet to Ann one day. "No, I certainly will not," was the answer. Then she told her a long, long story.

4. "My daughter," said Mary's mother to her little girl, "I think you have deceived me. I now wish you to tell me all about the matter, and I will forgive you." Little Mary has a large organ of Secretiveness, which she does not try to overcome, or to restrain; and although she loves her mother, yet she has so strong a desire to conceal her real feelings from every one, that she *thinks* she cannot have even her mother scan her little heart, and she will make a wrong statement of the affair rather than expose herself.

5. There are a great many things said or done by many persons, who really have no *intentions* to tell falsehoods, which are nothing more or less than lies. They do not express themselves clearly, and bring out the whole truth.

6. Some conceal, for the *purpose* of deceiving; as when a lady desires her servant to say she is not at home, when in fact she means that she is engaged, or does not wish to meet visiters.

7. We should be frank and open-hearted; we need

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3. What are some children always doing? In what way does Harriet show her Secretiveness? 4. Relate the case of Mary and her mother. 5. What are many of the things said and done by different persons? In what way do they err? 6. For what purpose do some conceal? Give an example. 7. What should we all endeavor to be?

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not disclose all our plans and operations to every one, neither express all our feelings and impressions; for in this way, we often wound the feelings of others, when in reality, we cherish feelings of kindness and love toward them; but we can be so free, clear, and honest, in our avowal of the truth, that every one will believe it to be truth.

8. If we take a peep inside of the school-room, we can see in what manner Secretiveness operates there. There is James; he pretends to study all the time, like the boy in the cut; but observe him more closely, and you will perceive that he has one eye on the teacher, to see if he looks at him, while he whispers with Joseph, instead of studying.

9. Then there is Samuel; he has just taken a piece of candy out of his pocket, and holds up his book before his face, while he puts it in his mouth. What secretive children!

10. I once heard of a little girl, who said in the morning, she had a bad headache. Her mother gave her permission to remain from school; very soon after her request was granted, before the school-bell rang, one of her schoolmates came into the room, and told her that the teacher had given them that day for play. How soon her headache passed away, and she was as bright and cheerful as a lark.

11. *Every one* of these cases is a deception; the children did not probably *mean* to deceive, yet they were not truthful. They wished to assume something

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7. What can we all do? 8. Where is Secretiveness an active principle? Relate the case of James. 9. What is Samuel doing in school? 10. Relate the case of the little girl who said she was sick. What caused her to get well so soon? 11. What is each of these cases? Why?

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to be, that was not. These very children, when they become men and women, will perhaps deceive their visitors, when they call to see them; or, if they are merchants, or even mechanics, will deceive their customers, and give false measure, or poor articles, for good. If you feel inclined to make a wrong statement when questioned, it is then time for you to correct and restrain this organ of Secretiveness, which, with proper care, will be a useful organ. If you wish to have truthful dispositions, cherish no deception of any kind, but be frank and open-hearted.

12. We have seen that we have not only portions of the brain that give us feelings of love to each other, and to our brothers and sisters; but we have what are called the Selfish Propensities.

They are called selfish, because, if not restrained, they will lead to selfishness. They are given to us to supply the wants of the body; and, if we use them rightly, we shall find every one to be a very useful servant. We need Combativeness and Destructiveness to give us energy, to help us overcome all difficulties, to give us true courage. We need Acquisitiveness and Alimentiveness; one to procure us food, and the other to induce us to eat it when obtained; and we also require the services of Secretiveness, to enable us "to put a guard on the door of our lips;" yet we should not use these different organs to fight, to contend, or to

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11. What will these children be induced to do when they become old? When is it necessary to restrain this organ? Is this ever a useful organ? How can truthful dispositions be cultivated? 12. What has been explained in this last chapter? Why are they called Selfish Propensities? What will they be if used rightly? For what do we need Combativeness? Of what use are Acquisitiveness and Alimentiveness? Of what use is Secretiveness? For what should we not use these different organs?

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kill; to hoard money, to become gluttonous, or to deceive.

13. There is another class of faculties, more elevated than those I have been describing, yet somewhat similar in their nature to the selfish propensities. In order to name or designate them properly, we call them *selfish sentiments*, as they are not sufficiently elevated to be classed with the moral sentiments.

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13. How do the selfish sentiments compare with the selfish propensities? Why are they so called?

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CHAPTER IV.

SELFISH SENTIMENTS.

11. CAUTIOUSNESS.

Definition—Carefulness; anxiety; fear; regard for the future.
Location—Cautiousness is located on each side of the head just above Secretiveness.

1. Dr Gall noticed that all persons who were very cautious, or timid, or easily frightened, or always looking ahead and borrowing trouble, had a large prominence on the sides of their head, just above and a little behind Secretiveness. So he gave the name Cautiousness to that portion of the head. Children, most generally, have this organ large, and it is of much service to them; for if they had nothing to cause them to look ahead and

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What is the subject of chapter fourth? What is the definition of Cautiousness? What is its location? 1. Why did Dr. Gall name that portion of the head Cautiousness? Who generally have this organ large? Why is it of much service to them? What guide do children lack?

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beware of danger, they would continually meet with accidents; for they have not much experience to guide them.

2. There is this difference between caution and experience—a child with large Caution would run out of the road, to avoid being kicked, or run over by the horses; while, if he had it small, he would not run, and would therefore be kicked, and thus learn by this, or from experience, that he must *always* run when the horse was coming. A child with small Cautiousness—or if it be large and have not been exercised—will be pleased with the bright light, and will desire to put its finger in the flame. After it has been burnt once, it learns from experience, that it must not always play with everything that is bright and handsome.

3. A little fly, with small Cautiousness, saw the warm steam rising beautifully from a dish of water, and flew nearer and nearer, till she came so near, that she was drawn in by the warm steam, and was drowned. Her experience in this case did her no good. It would have been better if she had possessed more Cautiousness.

4. You have probably noticed the difference between large and small Cautiousness among your playmates. Some boys will climb to the top of a very high and slender pole, while others will scarcely venture to climb over a fence or wall. I once heard of a boy who was so daring, that he would do almost anything you could imagine. He took a chair one day, and crawled down the steep roof of a church to the very edge, and

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2. What is the difference between caution and experience What other illustration is given 3. What was the case with the little fly? Which would have been preferable? 4. What difference is there in boys? Relate the case of the daring and courageous boy?

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then sat down in the chair, and folded his arms, to the great fear of the people who saw him.

5. In one of the villages of New York, there is a lad, who has but a very small piece of brain where Cautiousness is situated, and he is perfectly fearless in his disposition. One day he climbed the lightning-rod on the church, and when he reached the top, he swung his foot over the forks of the rod.

6. There are some who will climb to the summit of precipices. They know that the sharp rocks, and streams of water are below them, and that if they take one wrong step, they would be precipitated to the bottom and be torn in pieces. There are some who will *swim* in very deep water, while others will hardly *wade* in it, when shallow.

7. The cut at the commencement of this organ, represents a pond of ice. One of the boys, who saw that the other was walking toward it, with his skates in one hand, and staff in the other, warned him that it was dangerous, as it had already broken in one place, and might in others. "Oh!" said the lad with small Cautiousness, "I do not care, I can find thick ice somewhere in the pond, and I intend to avoid all the holes and thin places." "But," said he, with large Cautiousness, "*do take care*, for you will certainly fall into a hole before you are aware of it. I shall not skate again till the weather is much colder, and the water freezes harder."

8. How many scholars there are who are actually

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5. Relate the case of the boy who had very small Cautiousness? 6. What will some do who have small Cautiousness? Of what danger are they regardless? How is this organ shown in reference to water? 7. What does the first cut represent? Relate the story. 8. In what way does Cautiousness affect scholars?

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afraid to tell their teachers all they know about their lessons. They have Cautiousness so large, that as soon as the question is asked, they either forget the answer, or are so confused, that they cannot speak what they know perfectly. If they say anything, they speak so low that they can scarcely be heard.

9. I know a little girl who has large Cautiousness, who always asked to have a light in her room when she went to bed, and wished her mother to stay with her and sing her to sleep. If she woke and found that her mother had left the room, she would scream as if she were very much terrified. This caused her mother much trouble, and should have been corrected.

10. Mothers show large Cautiousness and Philoprogenitiveness when they are extremely anxious about their children. If they take a slight cold, they think all the time that they will be sick, and perhaps die. If they go to school, they are fearful that some accident will happen to then. They show this organ, when they will not permit their little children to climb the backs of chairs, or the stairs, and forget that they must *learn* to do these things before they can do them well. They show it, by covering their children with clothing so that not a breath of air can reach them, and forget that it is pure air which vitalizes their blood.

11. They show it, when they do not bathe their children in cold water, and are fearful that they may take cold if they do. This will be the case, if they do it only

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9. In what way did the little girl show her Cautiousness? 10. In what way do mothers show Cautiousness and Philoprogenitiveness? What fears have they for their children? Why do they not permit them to climb the backs of chairs? What do parents forget? 11. How do some mothers regard cold water?

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occasionally, on some important occasion, when they are to be dressed.

12. A good old grandmother manifested it, when she charged her grandchildren "not to go near the water till they had learned to swim," for fear they would be drowned.

13. Those persons who have small Cautiousness, together with small Secretiveness, are very blunt in their remarks, and frequently injure the feelings of others by them, so that in either excess it is unfortunate. You must exercise this enough to know what you intend to do, before you commence, and to take proper care and anxiety for the future. If the little girl had too much, she would not begin to cut out her doll-baby's dresses: and if she had too little, she would waste her muslin; so she must have just enough to accomplish what she desires.

14. In the cut at the end of the organ, the old hen sees the hawk flying over her head, and her instinct tells her that she wants her dear little chicks; so she screams, flaps her wings, and calls all her little ones together, that she may protect them under the shadow of her wings. She has, like the mother, Cautiousness and Philoprogenitiveness combined.

12. In what way did an old grandmother show this organ? 13. What are the effects of small Cautiousness and small Secretiveness? How must this organ be exercised? Give an example. 14. Explain the cut at the end of the organ

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12. APPROBATIVENESS.

DEFINITION—Love of praise; ambition; desire for fame; sensitiveness.
LOCATION—Approbativeness is situated between Cautiousness and Self-Esteem—an organ next to be described—on each side of the head.

1. WE were not created to serve and please ourselves alone, while we are surrounded by friends and acquaintances; and we, therefore, find that there is a distinct portion on each side of the head, which was given to us for that purpose—to dispose us to please our friends, to be polite, affable, and courteous. When this organ of Approbativeness is large and active, it causes the person to be very sensitive to praise or censure.

2. He will feel it very keenly if he be reproved for doing anything wrong, and feel much hurt, if addressed in harsh and unkind language; and will also be much

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What is the definition of Approbativeness? What is its location? 1. What was *not* the design of our Creator? With what are we provided, and for what purpose? What is one effect of this organ? 2. How will the person receive reproof and unkindness? How can he be encouraged?

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encouraged, if he receives a word of praise or commendation from his parents and teachers.

3. All nations and all classes of people manifest a love for approbation, but in different ways, which depends greatly on circumstances and education.

4. The people who live in China, press the feet of their children, and bandage them as soon as they are born, to prevent their growth. They admire small feet, and are willing to torture themselves and their children, in order to gratify this feeling of Approbativeness.

5. The Flat-headed Indians, on the other hand, think that a flat forehead is a mark of beauty; so all their little infants have their foreheads pressed backward, and have a bandage put around the head, in order that the brain need not grow and expand in the forehead. Others press different parts of their heads for the same purpose.

6. There are many Indian tribes, who paint their bodies with various colors, wear beads in their noses, and earrings in their ears, and cut and disfigure their bodies, solely for the sake of pleasing others.

7. The same feeling is shown in more *civilized* nations, by extravagant and showy dress, or by pressing in the *ribs*, instead of the *head* or *feet*, to make small waists. Although it is silly and ridiculous to do either of the former, yet the effects are not so injurious as the latter; for, when the ribs are compressed, all the vital organs suffer, and life is shortened.

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3. How extensive is the influence of this organ? Is there any difference? 4. What is a custom among the Chinese? What do they admire? 5. What do the Flat-headed Indians consider a mark of beauty? What is their peculiar custom? 6. What are the customs of other Indian tribes? 7. How is this feeling exhibited in civilized nations? Why are the effects of this latter custom more injurious than the former?

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8. Some wear a quantity of jewels, and buy a great deal of fine furniture, to gratify this faculty.

9. Love of approbation is one of the strongest motives and incentives to all our actions. We speak, look, and act, not so much to gratify our own feelings, or to secure our own happiness, but to gratify others, and make them happy.

10. This same principle induces many people to dress themselves in their finest clothes, when they walk out, and to open their parlors, and sit in them, when they have company.

11. Little girls exhibit a fondness for dress and show very early. Why? Because they desire to be praised; they are fond of approbation.

12. There is another way in which Approbativeness is developed, viz.: in *ambition*. Said a little boy: "Mother told me, when I become a man, I may go on a voyage round Cape Horn." The little boy never thought of the hardships which he would be obliged to encounter, the heat and the cold he must endure, but looked forward to this event with bright anticipations; his ambition would be gratified, he could do as his father was doing, and he would then be satisfied.

13. Napoleon Bonaparte had unbounded ambition; he desired to conquer the whole world, and bring all nations in subjection to his power.

14. When king Alexander had conquered almost all

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8. In what way do others show this faculty? 9. What is a powerful motive to action? How do we show it? 10. Name some of the other ways in which this faculty is exhibited? 11. What do little girls easily exhibit? What is the cause of this? 12. What is the next way in which Approbativeness is developed? Give an example of the little boy. Of what did he never think? Why would he be satisfied? 13. In what is Bonaparte an example of ambition?

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the eastern world, and was pushing his armies onward to new conquests, he wept because there were not more worlds to conquer.

5. Approbativeness is exhibited by the desire to excel others. There are many students, who will sit up all night to study, in order that they may excel all others in their class. They thus weaken their bodies, and impair their minds, so that they can do very little good with their knowledge when gained.

16. Boys show this organ in their sports; they will try to leap a little farther than the one who performed last, and by over-exertions often injure themselves.

17. You have all probably heard of the illustrious Sam Patch, who leaped over the Falls of Niagara. He was very desirous to have the praise and approbation of others, and could not think of anything else by which to gain it; so he jumped twenty, thirty, forty, and one hundred feet; and, in the presence of ten thousand persons, leaped at Niagara Falls—from a scaffold raised for that purpose—into the water, and being excited by the applauses of the people, he proposed to jump at the Genesee Falls, which are ninety-six feet high, from a scaffold twenty-five feet high, which made one hundred and twenty-one feet in height; but this last leap proved that "he took one leap too much;" for he was drowned in the waters, never to rise again. He was another instance of the folly of too great ambition.

18. When this feeling is excessive, it frequently leads

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14. How did Alexander show ambition? 15. What is another way in which this organ is exhibited? What do students often do? What are the effects of this course? 16. In what way do boys show this organ? 17. Who was Sam Patch? Of what was he desirous? What did he do to obtain this? What was his last proposition, and how did it end?

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to selfishness, as I will show by the following story. It makes some people irritable and uneasy, when they cannot succeed in doing what they attempt to do.

19. Let us look at those two boys in the next field, who are sailing their kites. John and William played very pleasantly together, till John's kite began to ascend higher than William's. He said this was not fair play, and told John he thought it was time to go home; but John, who enjoyed the sport very much, replied, that he was not quite ready, and, moreover, their parents had given them the whole afternoon for play. William had very large Approbativeness, and could not endure the idea of being excelled by another in anything.

20. He began, therefore, to feel quite uneasy; still, John's kite continued to ascend in the air, with the rapid speed of a bird, till it really appeared very beautiful, as it was wafted along by the light breeze. As John turned his head, William cut the string, and then the kite came tumbling, tumbling, down through the air, as a man totters along when he has drank so much rum that his muscles cannot support him.

21. Here was trouble. John, although a very good and kind-hearted boy, could not help crying, and told William he would never play with him again.

What shall we call William?

Every one would say, "A very, very selfish boy."

22. The kite happened to fall where John could easily find it, and, being pacified, they went out again the next

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18. What are the effects of the excessive exercise of this organ? 19. Relate the story of John and William. Why did William begin to feel uneasy? 20. What is said of John's kite? What did William do, and what was the effect of it? 21. How did John feel? What was William? 22. Why did John become reconciled to William?

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day to play. William had fixed his kite, and put on some new bobbin, to see if his could not equal John's. They tried again. They unrolled their cord; away went the bobbin and away went their kites; they mounted together, but very soon John's again rose higher and higher, till it appeared like a little speck in the air.

23. William was much displeased, and was strongly inclined to use his Combativeness; but, as they had not much time that day for play, they soon returned home.

John ran off to school light-hearted, but William thought during the whole day of the speed of John's kite. On his way home from school, he recollected that John had told him he intended to go on an errand for his mother. In passing by his father's yard, he saw the kite lying in one corner, as John had left it in the morning. A wicked thought came into his mind—*to exchange one for the other.* As they lived very near each other, this was done without attracting the notice of any one.

24. The next play-day William proposed to John to go out again and have a fine time. In the meantime William had painted John's kite, and marked it all over, so that he would not recognize it. They let out their kites in the air, when lo! William's soared up to the clouds, while John's—who did not notice but that he had his own—could not succeed at all.

25. William's Approbativeness was gratified. Do you think, children, that William was *happy?* no! there was something within that troubled him, and told him

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22. What is said of their next attempt? 23. What were the feelings of William? What did William recollect? What resulted from this remembrance? Did he succeed? 24. Did they play again together? Why did not John recognize his kite? How did they succeed this afternoon? 25. What was William's motive?

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that he had acted wrongly. He not only had too much Approbativeness, but exercised his Acquisitiveness by taking what did not belong to him. When you have a very great desire to excel others, recollect the case of William, and how unhappy he must have been in the course he pursued.

26. We should keep this organ under proper restraint; but should be anxious to have a good name, and clear reputation, and should strive to do all we can to make others happy.

27. The cut represents the meeting of a very polite lady and gentleman, who had large Approbativeness.

13. SELF-ESTEEM.

DEFINITION—Self-respect; dignity; independence; love of liberty; desire to rule and command.

LOCATION—Self-Esteem is situated between the two organs of Approbativeness, just where the back part of the head begins to rise.

1. SOME people are vain, others are proud. The difference between vanity and pride—is simply this—

25. Was he happy? Why not? Why should children remember this story? 26. How much should we exercise this organ? 27. What does the cut represent? What is the definition of Self-Esteem? What is its location? 1 What is the difference between pride and vanity?

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vanity disposes us to show off our attractions to others, to secure their attention, to please them, and to obtain their praise and good-will; this arises from Approbativeness; while pride cares not so much for the respect and good will of *others*, as for our *own* feelings of respect, our own good-will; this arises from Self-Esteem.

2. A person who has large Self-Esteem, desires to pursue his own course in life, to think and act for himself. He does not ask another what he shall do, but decides for himself.

3. Children with this organ large, think they can do as much as their parents; and often feel as though they were too old to render obedience to their requests. They also show it in their plays. Some one is always the head, the captain, or the ruling spirit, and all the others do as he dictates.

4. Young men who have large Self-Esteem, are anxious to get away from the restraints of home, to be their own masters, to take their own cares and responsibilities, and to act as they please. See the cut.

Some show the influence of this organ by the exercise of a commanding spirit; they love to rule and govern their fellow-beings; one man always rules, and another serves; one man makes the laws of the nation, and another obeys them; one man is teacher, another is scholar.

5. This organ is developed sometimes by dignity. There are some who do right, because they have

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1. From what do they each arise? 2. What does Self-Esteem dispose a person to do? 3, In what way do children show this organ? 4. In what way do young men show it? In what other ways is it frequently exhibited? 5. What is the next way in which it is shown? What induces some persons to do right?

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too much *honor* to do otherwise; for, if they took a wrong course, they would not feel a self-respect which they call honor. Some have *false* ideas about honor. At the South, if a person speaks to another at all disrespectfully, the latter feels that he must challenge him to fight a duel, and endeavor to take his life; but it would be *much more* honorable for him to *forgive*, or pass it by in silence.

6. With very small Self-Esteem, one places but little value on what he does; and, if Approbativeness be large, he is so anxious to please, that he fears all the time that he shall fail, and therefore does worse than he might if the organ were large. Sometimes the organ is too large, and gives a haughty, domineering spirit, as is manifested in the cut.

7. The peacock has both Self-Esteem and Approbativeness. She spreads out her beautiful feathers, as if conscious of her charms, and as if she desired to attract the attention of others.

8. We need just enough Self-Esteem to cause us to place a fair value on ourselves, that we may bring out all our powers to their full extent; and not so much as to make us proud and haughty.

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5. What is meant by honor at the South? What would be a preferable course? 6. What is the influence of very small Self-Esteem joined with large Approbativeness? 7. In what way does the peacock represent Self-Esteem? 8. How much of this organ is necessary?

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14. FIRMNESS.

DEFINITION—Will; decision; perseverance; determination; obstinacy.
LOCATION—Firmness is situated on the back part of the top of the head, immediately in front of Self-Esteem.

1. FIRMNESS is a very important organ; but, like all the others, is liable to perversion, as I will show you. If a person has large Firmness, and, especially, large Self-Esteem, he is very firm, set, unyielding, and frequently stubborn. If he intends to pursue any course, he is decided to do it, whether it be for the best or not.

2. If a person has but little Firmness, he has not much character; he will say, "I will if I can," "Perhaps I will," "I will try," etc.; but when it is large, he says, "*Rain or shine, I will go, and nothing shall prevent me.*"

3. Children, generally, have this organ very largely developed, and it is a source of much trouble to those who have the care of them; for it is not guided by reason.

What is the definition of Firmness? What is its location? 1. What is said of Firmness? What are the influences of large Firmness and large Self-Esteem? 2. What does a person say with small Firmness? What if Firmness be large? 3. What is said of this organ in children?

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4. How often do children refuse to yield obedience to their parents. Richard has resolved to do a certain thing; his mother says that he must not do it. If Richard does not say, "*I will*," it is not because he does not feel so; for he still persists, and does not yield till he has accomplished what he desires.

5. "Charles, dear, do not shut the door," said his mother. "No, mother," replied the little boy, but all the time he shut it more, and would have finally closed it, if his mother had not taken him away.

6. Robert told his father a falsehood; he asked his son again and again if his statement of the thing were correct; but Robert has told his story; and, although his conscience whispered to him that he had done wrong, yet he is unwilling to retract what he has once said; he foolishly thought he must adhere to his word.

7. Once there was a little boy named Edward. His mother put him to bed one night, and asked him to kiss her, as he usually did. But for some cause, he thought that he would not. "Why, Edward," said his mother, "I wish you to kiss me." He refused to do so. "Why, Edward, do you not intend to do as I wish you, and kiss me?" Still Edward would not yield.

8. "Then," said his mother, "I must punish you, for you must obey your mother." So she punished him, but still he was determined not to obey her, and he did not. He had large Firmness, thus to refuse to do what was usually a great pleasure both to him and to his mother; he would yield neither to her entreaties nor commands.

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4. What do children often refuse to do? Relate the case of William. 5. Relate the case of Charles? 6. Relate the case of Robert. 7, 8. Relate the story of little Edward? 9. What was Edward's disposition?

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9. He was not only firm, but obstinate. In each of the above cases the children did not wilfully mean to do wrong; but they did not wish to yield their wills to another. They wished to have their own way, and yield only to their own desires and inclinations. They acted somewhat in the same way as the mule does which is represented in the cut, at the end of this organ. The mule is a very stubborn animal; the more the man endeavored to make him follow, the less inclined he was to move. Even blows produced no effect on him.

10. It is well to have some firmness and decision of character! for, without them, we could be influenced by every body, and made to do just as they desired. We should commence a great many pieces of work at the same time, and never finish any of them. We should have no resolution, but would continually change our places. We should do one thing one day, and attempt another the next.

11. Mungo Park, an excellent man, who lived many years ago, had a great fondness for making discoveries. Africa, you know, is in the Eastern Hemisphere, many thousand miles from New York. A great portion of that large country is a sandy desert, and is uninhabited. No people, or very few, live in the interior countries; and it is almost impossible for any one to travel through them on account of the savage character of the people, and the unhealthiness of the climate. The river Niger runs through Africa. Many years since no one knew its source, where it terminated, or emptied its waters.

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9. What probably was the motive of each of the children in the above stories? What is said of the mule? 10. Why is some firmness desirable? 11. Who was Mungo Park? Where is Africa? What is said of most of that country? What was not known concerning the river Niger?

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12. The European people were very anxious to ascertain this, in order to send their ships down the river if it were possible; but no one was willing to undertake so dangerous an enterprise, till Mungo Park said he would go, and brave all the dangers and endure all the hardships, if they would provide him with a fleet of ships and a sufficient number of men.

13. They set out, and, as was expected, they met with numerous difficulties; for all the men who went with him died, and he almost starved for want of food. Everything he had was stolen from him by the natives. He returned to Europe, and being not at all daunted by his first failure, determined to embark again. So another fleet was provided, as well as provision for the journey. He lived to see all his men, but two or three, killed or taken away by disease. He was then taken captive or killed by a tribe of savages, while sailing on the river Niger.

14. Some may say that he was guided by Approbativeness—that he was desirous of fame and glory; be that as it may, if he had not possessed large Firmness, which gave him energy, resolution, and decision of character, he could never have endured what he did. But his *Firmness* caused him to say, "I will go; yea, if I die, I will go;" and go he did, and died on his favorite stream, but not till he had gained considerable information on the subject which he had so much at heart.

15. Napoleon Bonaparte is another instance of large

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12. Why were the European people interested in this river? What was the offer of Mungo Park? 13. What was their success? What did he then do? What became of the second fleet? What was his own fate? 14. What enabled this noble man to endure so many hardships? What language did his Firmness dictate? What did he gain?

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Firmness. He was an obscure boy when young, but had an uncommon amount of perseverance, by which he rose from one station to another, till finally his name was borne on the breezes of the nation as Emperor of France; and at one time nearly the whole of Europe was shaken by his name; and, if his ambition had not been too excessive, he would have been contented with a *measure* of fame, and never have lost his crown and been banished to the lonely isle of Helena, to waste away his days. He is represented in the cut, at the commencement of this organ, with some of his generals, all equipped for an engagement.

16. Robert Bruce had large Firmness, and much perseverance. He had been defeated again and again, and was almost discouraged, and was about to surrender himself to the enemy. One day he laid himself down on his bed, and was meditating on the sad state of his affairs, and thinking of the prospects of the future, when he observed a spider weaving her web on the ceiling.

17. He noticed that as often as the spider attached the thread to the farther end, the thread broke, but still the spider tried again. Robert was so pleased with the spider's efforts that he forgot his own misfortunes. He counted the times that the spider tried to fasten her web. When she had failed the sixth time, he recollected that he had been defeated just six times. Said he, "If *she* tries again and succeeds, *I* will try again to regain my lost fortunes."

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15. Who is another instance of large Firmness? What is said of him? What would have been the result if his ambition had been less? How is he represented in the cut? 16. Who is another instance of this organ? What is said of his success, and what did he do? 17. What observations did he make on the spider? How did this affect him?

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18. The spider tried again, succeeded, and Robert Bruce left his couch with new resolutions. He rallied around him a few chosen spirits who were his warm and devoted friends, and went into the field of battle. The tide of success turned in his favor, and he was ever afterward fortunate. He possessed perseverance, and although he had often been defeated, yet he persevered till he finally succeeded in his efforts.

19. There are many rich and intelligent men who were poor and ragged when children, but who, by perseverance, have become distinguished men in society, highly respected and esteemed.

20. Inebriates, who break off from their cups, require much Firmness to sustain them in their good resolutions; and the reason that so many become intemperate after they have signed the pledge, is, because they have not decision enough to refuse to drink with their friends, or because their Adhesiveness or Approbativeness is larger than their Firmness; yet this is no *excuse* for them, for if they are conscious that they are easily influenced by their friends, they should try to cultivate this organ of Firmness, and guard against temptation.

21. Some of our most noble buildings, the works of art, the great pyramids of the ancient world, the temples, castles, and churches, have resulted from the development of this organ, in those who built them.

22. With Firmness, I finish the description of the

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18. What determination did he make? In what way did he keep his resolutions? What was his peculiar trait of character? 19. What is true respecting many of our distinguished members of society? 20. Who especially require Firmness? Why do many break the pledge? Why are these reasons no excuse for them? 21. What are some of the works of art which have resulted from Firmness? 22. What general remarks are made of these selfish sentiments?

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selfish sentiments; and you can see that, although the exercise of them *can* produce selfishness, yet they are capable of a higher office than the selfish propensities. We were created social beings, and it is both our privilege and duty to exercise these social organs in a proper manner.

23. We were also created selfish beings; for we have an animal nature, and its corresponding wants, which must be gratified. We must eat, and exercise our Alimentiveness; we must find something to eat by calling to our aid Acquisitiveness; we must also use our Cautiousness, to warn us of the approach of danger, and to bid us take thought for our future wants; we use our Approbativeness to make us polite, affable, and careful of injuring the feelings of others; we use our Self-Esteem to make us independent, manly, and dignified; and, finally, we use our Firmness to give us decision of character, perseverance, and stability. These organs are all given us *for* a good purpose; and if we do not *abuse* these faculties, we shall be doing only what our Creator intended for us to do, *to nourish and support our bodies by their use.*

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22. What is said of our social nature? 23. What is said of our selfish nature? For what do we need these different selfish organs? In what way can we do what our Creator intended that we should?

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CHAPTER V.

MORAL SENTIMENTS.

15. CONSCIENTIOUSNESS.

Definition—Regard for duty; justice; sense of moral obligation, and the right and wrong of actions.

Location—Conscientiousness is situated on each side of Firmness.

1. There is an element of mind within us that is called conscience. There is also a portion of brain which corresponds to this element. Every one has this monitor, which watches over all his actions, and speaks in tones almost audible, to inform him when he has done right or wrong.

What is the subject of chapter fifth? What is the definition of Conscientiousness? What is its location? 1. What element do we possess? What corresponds to this? Is this monitor confined to a few?

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2. The reason why it is called a guide, or monitor, is, because the word monitor means some one to watch over us, to take care of, or to warn us of our faults.

3. In some schools, one of the older scholars is selected by the teacher to take care of the smaller children, to hear their lessons, etc., and is called a monitor. Let us examine and see if all of us have a conscience to serve us as a monitor.

4. We will take the little child; its mother says, "No, my dear, do not touch it; the little thing puts out its hand, and wishes to touch it very much, yet draws it back again.

5. The child goes to school, sees a piece of money on the floor, reaches forth to take it; but there is something that draws him back, and whispers to him, "Do not take it," and he reflects that it does not belong to him.

6. On his way to school, he passes a stall where there are some fine oranges, and other fruit, exhibited for sale in a very tempting manner. The woman has turned her head, and the lad wishes that one of those nice oranges was in his pocket; but there is a still, small voice, that says, "It is not right; they do not belong to you;" he draws back his hand, and hastens to school.

7. In school, one day, one of the boys was called out by the teacher, to be punished for making a great noise, or for whispering. Why is it that his neighbor cannot study? ah! he hears that silent monitor say, "Do not

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2. Why is the conscience called a monitor? 3. What is meant by a monitor in school? 4. What is said of the mother and the child? 5. What is related of the child when in school? 6. In what form does temptation come to him again? Does he resist, and why? 7. What is said of the two boys in school? Why did the noble boy confess that he had done the mischief?

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let the innocent be punished for the guilty;" so he stands in his seat, and firmly said to the teacher, "I made the noise, Sir."

8. Ann has done something wrong. She has told her mother a falsehood. She goes to bed at night, but her usually sweet and quiet slumbers are disturbed; and she cannot sleep till she has asked forgiveness of her mother.

9. Another example: George Washington—and I presume all children know perfectly well who he was—when a little boy, had a new hatchet presented to him, which pleased him greatly. As boys frequently do, he hacked everything which came in his way. Among other things, he cut a young cherry-tree in his father's garden. His father thought much of this tree, and valued it highly.

10. When he came home, and saw what had been done, he was very much surprised that any one should have been so thoughtless as to destroy his valuable tree. Little George stood at the side of his father, and at once saw the mischief he had done, and was much afraid of his father's displeasure; but, summoning courage, he looked in his father's face, and said, "It was I, father, who cut the tree, with my little hatchet."

11. His father was so pleased with the candor and truthfulness of his son, that he could not punish him; but told him how much better pleased he was to see his little boy honest, than with all the trees in the nursery.

12. George Washington never told a lie. Why not? Because he, with the others of whom I have spoken

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8. Relate the case of Ann. 9, 10. Relate the story of George Washington. 11. What were the feelings of his father?

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previously, had large Conscientiousness, or in other words, because they heeded that still, small voice, which always speaks in gentle tones, but so loud that we may always hear if we listen attentively.

13. When we do right, there is something which almost always tells us of it, and makes us very happy. It is even exhibited in the countenance. You often hear your teacher, or some older person say, "That boy has done wrong, for he *appears* guilty," or "that he *appears* innocent."

14. Sometimes persons who commit crimes secretly, which are not discovered, confess their guilt, and deliver themselves up to justice, even many years after the deed has been done.

15. I once read of a Jew, who travelled with his master, who was rich, and carried a large quantity of jewellery with him. The servant, instigated by love of money, killed his master, lowered his body in the water, seized his property, and left for another part of the country.

16. He there commenced business gradually, and became richer and more successful, owing, as the people then thought, to his industry, and skill in business. He became so popular, and was so much esteemed in the town where he lived, that he married a daughter of one of the most influential men. He soon rose to office, and was elected one of their judges.

17. A man was brought into court, one day, charged

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12. What was true of this boy? Why was he always truthful? In what way does our conscience speak? 13. What is always the case when we do right? Where is this exhibited? What is a very common remark? 14. What is true of many persons who commit crimes secretly? 15, 16. Relate the anecdote of the Jew?

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with murdering another man; the case was the murder of the Jew's old master, whose body had been found in the river. The man pleaded innocence, but the evidence was so strong against him that his sentence was almost sure. The judge was quite uneasy in his seat, and finally rose on his feet and addressed those present.

18. He told them, that, although the evidence appeared perfectly clear against the man, yet his own conscience would not permit him to suffer punishment; that he knew that he was innocent, for he himself was the guilty man. He then confessed the whole affair from beginning to end, told how he had deceived the people by feigning to be poor when he was rich, and concluded by saying that he wished justice done to himself, for he had led a very unhappy life since he committed the deed, being wounded continually by the stings of conscience. This man had large Conscientiousness, but was influenced more by his large Acquisitiveness.

19. The conscience can, and does, become seared or hardened, if we neglect to heed its voice; yet even then, it will occasionally speak to disturb our peace and happiness.

20. Children generally have large Conscience when they are young, but too many neglect to take care of it. Suppose you should plant seeds in a garden, and when the leaflets raised their tiny heads above the ground,

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17. What suit was brought into court one day? 18. What course did the judge pursue? Why had he been unhappy? What motives influenced this Jew? 19. How can the conscience become hardened? 20. Who generally have large Conscience? In what way is its neglect illustrated by seeds in a garden?

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you should let the weeds grow all around the tender plant, do you not think it would be choked or killed by them? Precisely the same is true in reference to children.

21. Their conscience is like a sheet of white paper; every time the child disregards its voice, it is like a spot of ink dropped on the paper. This spot can never be entirely removed; the paper will never be so clear and white again as it was at first. So, if we do wrong once, we may feel very badly; the second time, it is easier for us to refuse to listen to the monitions of conscience; till, finally, a person can take the life of another, and scarcely feel any sorrow or guilt at the time, though most of all our abandoned criminals have moments when they think of the days of their innocence and purity, and would be willing to give worlds, if they had them, if it were possible that the remembrance of their guilt could be blotted out from their memories. They feel the keen pangs of remorse, and weep in bitterness of spirit.

22. Those who commit murders, and do other wicked deeds, were once pure, playful, and happy children. They were fondled and caressed as much by a fond mother, and were nestled as closely to her bosom of love, and felt as badly as any of you at the first sin they committed.

23. Indians are frequently very conscientious. The following fact shows that they recognize this element

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21. What resemblance is there between the conscience of a child and a sheet of white paper? What is said of the first and second sin? Do abandoned criminals ever feel the stings of conscience? What does it lead them to think? 22. What were hardened sinners when children? 23. Have Indians a conscience?

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of mind. An Indian, being among his white neighbors, asked for a little tobacco to smoke, and one of them, having some loose in his pocket, gave him a handful. The day following, the Indian came back inquiring for the donor, saying, "That he had found a quarter of a dollar among the tobacco."

24. Being told "That as it had been given to him, he might as well keep it," he answered, pointing to his breast, "I got a good man and a bad man here; the good man say, 'It is not mine, I must return it to the owner;' the bad man say, 'Why, he gave it to you, and it is your own now;' the good man say, 'That's not right; the *tobacco* is yours, not the *money;*' the bad man say, 'Never mind, you got it, go buy some dram;' the good man say, 'No, no, you must not do so;' so I don't know what to do. I think to go to sleep, but the good man and the bad man keep talking all night, and trouble me; and now I bring the money back I feel good." In this case the Indian called the monitions of his conscience the good or bad man, and could not be easy or quiet under its reproaches.

25. Remember, then, children, to take care of that conscience of yours while you are young; when you have done wrong, be willing to confess it, and endeavor to do wrong no more. I know that there are some who have large Conscience, but whose Firmness is weak, who are easily influenced by bad and wicked companions, and are led astray by them; to such I would say, if you cannot say "*No*," when a friend asks you to

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23, 24. Relate the anecdote of the Indian? What did the Indian call his conscience? 25. What should children endeavor to do? What is said of those who have large Conscience, but small Firmness? What direction is given to such persons?

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do something which your conscience tells you is wrong, then avoid the company of that friend. This is the only way to become virtuous, truthful, and conscientious; and I hope you all have the desire to improve your minds and dispositions. Remember, children, you are now laying the foundation for your future characters. What you wish to be when men and women, endeavor to be while children.

26. Conscientiousness is represented in the cut by a female with a pair of scales, as if administering justice. She has a bandage around her eyes, that she may not be biassed in her decisions, but adhere strictly to the truth.

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16. HOPE.

DEFINITION—Anticipations of success; sense of the future.

LOCATION—The organ of Hope is located in front of Conscientiousness, each side of the back part of the head.

1. WE have learned that we have an element of mind to lead us to reflect on our actions, and to cause

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25. What should children remember? 26. How is Conscientiousness represented in the cut? What is the definition of Hope? What is its location? 1. What important thing have we just learned?

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us uneasiness and unhappiness when we have done wrong, as well as joy and peace when we have done right.

2. We might, if this organ were too excessive, be discouraged at times, and feel that all our efforts were useless, and that we could never do as we ought; but, close by its side lies another part of the brain, which disposes us to be cheerful, to look ahead, to forget the present, and to anticipate the future.

3. Children are generally very happy, light, and merry-hearted. One reason is, that they have no cares to trouble them, and very few sorrows to throw a gloom over their little spirits; another is, that their thoughts are always, as it were, on the tip-toe; they are thinking about a time to come, when the years will roll by, and manhood and womanhood shall be theirs. Then they will have, as *they* imagine, perfect enjoyment.

4. There is scarcely any one who does not anticipate, think, and say, what he will do in after years.

Said a little boy, "When I am a man, I intend to be a doctor, and I will have on my sign-board such and such letters," mentioning the initials of his own name; and thus *his* imagination was filled with drugs and medicines, and his hope was fed by the anticipation.

5. "To-morrow, I will do so and so," said the little girl.

"To-morrow. I will see my dear parents."

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2. What is the influence of excessive Hope? What is the function of the organ next to Hope? 3. What is a peculiarity of children? What are the two reasons for this? What do they imagine is in store for them? 4. Do all have these feelings? What anticipations did the little boy cherish? 5. What remarks are frequently made by those who have large anticipations?

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"To-morrow, I will go to school."

"To-morrow, I will finish my work."

"To-morrow, I will learn my lesson," etc.

6. Time flies, and the to-morrow comes, and then another to-morrow is anticipated. Years pass, and the little boy is a man; he now lays deeper plans and schemes, and says, "In a few years I shall be wealthy, or intellectual, and shall be able to rest from my labors." Disappointments come, but he still thinks there is "a good time coming," a bright day ahead, and he tries again.

7. Some men have this organ so large, that they speculate, or lay out a great deal of money in purchasing lands, thinking that their value will increase; but they frequently lose, because they cannot sell the land for as much money as they have paid for it.

8. Some buy large quantities of flour, wheat, and other articles of commerce, when there is but little in the market, thinking that if it is scarce, the value will increase; but they are very often obliged to sell it for less than they paid for it.

9. Very large Hope leads a person to make large promises. The future appears to him a dream of bliss; he thinks that success will certainly attend him, so he frequently meets with disappointments.

10. It is Hope that sustains and inspires the mariner, when he ventures on the stormy ocean. He leaves the endearments of home, and embarks for a long journey,

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6. What follows one to-morrow? What difference is there in the hopes of the boy and the man? How do disappointments affect him? 7. To what does this organ lead when very large? 7, 8. What illustrations are given? 9. What is another exhibition of large Hope? 10. What does Hope enable the mariner to do?

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and knows that he will be in the midst of dangers and perils; yet he hopes and anticipates that fortune will crown his efforts, and that he shall accumulate property.

11. When the winds blow around his ship, and the angry waves dash against it with fury, and drive it on the rocks, why is he not filled with despair, when seated on his frail bark? There is a gleam of Hope in his soul. He sees a distant sail, which, although so distant that it appears like a speck on the waste of waters, yet Hope whispers that they will descry his situation, and come to his aid in season to snatch him from a watery grave.

12. The mother, as she holds the infant on her knee, thinks how soon her little one will walk, and talk, and become a member of society. Ah! how many hearts have been filled with sorrow, because their anticipations have not been realized. Children, your parents cherish bright anticipations for your welfare; do not disappoint their hopes, but strive, as far as you can, to meet their highest expectations. Gladden their hearts by your exertions to please them, and your own consciences will reward you, whether you meet with success or not.

13. Hope also induces us to look forward to a future life. We feel that when our *bodies* are laid in the ground to moulder and turn to dust, that our *souls* are destined to live for ever.

14. When the Christian exercises this organ as he should, he lays up a treasure in heaven, and looks forward to enjoyment *there*, rather than in *this* life.

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11. What dangers does he encounter? What supports him, and what does he expect and anticipate? 12. How does the mother regard her infant? What do these anticipations cause if they are not realized? What should children strive to do? 13. What other function has Hope? 14. What is the Christian's hope?

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15. He has, as is represented in the cut, an anchor to the soul; and, if he is disappointed in this life, he can look forward to future joys, when he shall be freed from the toils and temptations of this world.

17. MARVELLOUSNESS.

DEFINITION—Faith; belief in the strange, marvellous, spiritual, etc.
LOCATION—Marvellousness is situated on both sides of the head, immediately in front of Hope.

1. It is often said that children believe all they hear. If they did not believe what was told them they would never learn anything. As they have very little experience to guide them, they *must* have faith and confidence in others.

2. Sometimes this is carried too far, or older persons are not sufficiently careful to exercise it in a proper manner, for they are told about ghosts, goblins, and a great many other things which never existed.

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15. How is this represented in the cut? What can the Christian always anticipate? What is the definition of Marvellousness? What is its location? 1. How much do children believe? What advantage is there in this? Why? 2. In what way is this sometimes perverted?

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3. It is better, children, that you do thus have confidence in, and believe your parents and teachers, for they have, *generally*, your interests at heart, and only desire your good and improvement. If you had no Marvellousness you might not believe what I tell you about the brain and the mind.

4. There *are* some persons who are *too wise* to believe anything they cannot see and understand; but they are compelled to believe some things whether they wish or not.

5. We cannot see the circulation of the blood, yet we *know* that it does circulate. We cannot see the stomach, yet we *know* we have one. We cannot see the lungs, yet we are conscious of breathing. We cannot see the earth turn around on its axis, therefore many ignorantly and positively affirm that such is not the case. As well might we say that the stars never shone, if, on looking out of our window on a rainy evening, we could see only dark clouds moving before us.

6. A good old farmer who was accustomed to believe very few things which he could not see, explain, or understand, said that he did not believe that the earth ever turned around. He said he was compelled to believe that if he sowed seed in the spring he should be able to reap a harvest in the fall, because he had repeatedly tried the experiment! but that he had for many nights watched the well of water that stood before his door, and in the morning the water was invariably at the bot-

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3. Why should children have confidence in parents and teachers? 4. How wise are some persons? What are they compelled to do? 5. What is true respecting the circulation of the blood? Respecting the lungs and stomach? What do many say in regard to the earth, and why? What might be said with equal truth? 6. Relate the story of the good old farmer? What was he compelled to believe, and why?

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tom of the well, and never had been spilled in the night, which would certainly have been the case if the earth had turned around.

7. A certain king in Siam would not believe that water ever became hard enough to enable us to walk on it, merely because he had never seen it. Many persons have never seen Europe, nor a king, yet others have and we must believe their statement.

8. The exercise of this organ leads us to believe that God is everywhere around us, and that he, at all times, has the care of, and watches over us for good. The Christian holds communion with God, and he believes his prayers and petitions will be heard and answered. When he meets with trials and disappointments in this life, when he feels that this earth is not his resting place, but that all is uncertainty,

> In his Father's house, Faith whispers there is room,
> A welcome, a blessing, for all who will come.

9. The cut represents Moses as receiving the ten commandments from God, when on mount Sinai, in the midst of thunder and lightning, smoke and fire, to the great wonder and astonishment of the Jews.

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7. Relate the case of the king of Siam. What must those persons do who have never seen Europe, nor a king? 8. What does the exercise of this organ lead us to believe? What is the Christian enabled to do? What assurance and comfort has he when he feels that the earth is not his home? 9. What does the cut represent?

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18. VENERATION.

DEFINITION—Worship; devotion; regard for things sacred, old and ancient; deference; respect.

LOCATION—Veneration is situated directly in front of Firmness, on the upper part of the head.

1. You have just learned that by the exercise of Marvellousness, we believe in the existence of a God and Father in heaven. By the exercise of the organ of Veneration, we venerate, adore, and love him. We feel that he has created all things by which we are surrounded. The beautiful stars and planets that glitter in the firmament, the mountains and the valleys, the streamlets and rivers, the fields and the flowers, are all the works of his hand, and should call forth our Veneration.

2. People of almost every nation have this organ; but in some it is guided by superstition, in others by enlightened intellect and reason.

What is the definition of Veneration? What is its location? 1. What have you learned that the function of Marvellousness is? What is the influence of Veneration? What should call forth our Veneration? 2. How extensive is this organ? Why do we see a marked difference in its development?

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3. In Hindostan, where the people are very superstitious, they worship the monkey as a god; and at one time those ignorant people expended fifty thousand dollars in marrying two monkeys, with a great deal of pomp and ceremony.

4. They make costly sacrifices to their gods, one of which they call Juggernaut. This is a large chariot drawn by a numerous company of men. As it passes along the street, people rush out of their houses and throw costly and precious articles into it; and many of the poor ignorant women throw their children in the road, and suffer them to be trampled to death, believing that both they and the children will thus be blessed by their gods. Some throw their children into the rivers to be devoured by the crocodiles. Other people worship the sun, moon, and stars, and gods that they have made with their own hands.

5. Thus the superstitious and ignorant obey one of the strongest elements of their nature; yet, they have not sufficient intellect to choose for themselves the proper object of worship.

6. A person who has large Veneration will delight to wander among the ruins of old castles and works of art; will delight to collect specimens of antiquity; will respect talent and learning; will revere the old, and be always respectful to superiors, and the aged.

7. This organ is generally very deficient in children, especially in boys; hence, we too often find them rough,

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3. What is the character of the people of Hindostan? What is one of their gods? What ridiculous festival did these people make at one time? 4. What do they offer their gods? Describe the Juggernaut, and the customs of the people in reference to it? What are some of their sacrifices? 5. What class of people perform these deeds? Why do they do thus? 6. In what do persons with large Veneration take delight? 7. In whom is this organ too often deficient?

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rude, and boisterous. A minister once told me about a little boy, who, every one said was sadly deficient in Veneration. This gentleman went to his father's house to visit the family. While he conversed with them he was continually interrupted by the boy, who amused himself by throwing marbles around the room, some of them even hitting him. The little boy, although checked by his mother, still continued to annoy the minister so much that he soon left, and thought that he would not visit that family again, unless he knew that the boy was in school.

8. Children, too frequently, regard their parents and persons older than themselves with the same feelings and place them on the same level as they do their schoolmates; if this was not the case, we should not so often hear swearing, saucy, and unhandsome language; we should never see children pleased and amused with mocking, running after, and taunting old and crippled persons; their sneers would be turned into pity and commiseration for poor old men and women, and they would either permit them to pass in peace, or would try to relieve their distress and misery.

9. An instructor, who attempted to teach children to sing, remarked that in several places where he had assembled the children for that purpose, the boys were so rude, noisy, and troublesome, that he was compelled to dismiss the school. If these boys had exercised large Veneration, they would have respected their teacher, and would have given him their attention.

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7. What are the results? Relate the anecdote of the minister and the boy. 8. With what feelings do children often regard their parents? Why do we judge this to be the case? 9. In what way was an instructor annoyed, and why? What difference would large Veneration have made?

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10. The lecturer frequently has to stop during his lectures, to speak to unruly boys, who go only to play. Even in church, the minister is often disturbed by the conduct of the boys.

11. If children exercised large Veneration, the rod could be laid aside in the school-rooms; the mother would never be compelled to resort to punishment to enforce obedience; there would be no need of jails and prisons, for boys would then be good; the laws of the land would be respected and regarded, and men would live in comparative peace with each other.

12. Children, you *must* cultivate this organ of Veneration, which is very important. You *must* learn to be respectful to those older than yourselves, and especially to those very aged. You must lay aside all rough, vulgar habits and manners, that are so troublesome to your friends, and be refined, gentle, amiable, and polite.

13. You must also cultivate a veneration for God; you ought to pray to him, and love to do it. If you did this from childhood, so far from being a trouble to you, it would become a source both of pleasure and delight; as much so as to converse with your parents and playmates. The Saviour said, "Suffer little children to come unto me, and forbid them not, for of such is the kingdom of heaven;" and be assured that your heavenly Father will be pleased to have your little petitions presented to him.

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10. In what ways are the lecturer and minister often annoyed? 11. What good results would follow from the exercise of large Veneration in children? 12. What duties are enjoined on children? 13. What obligations do children owe to their Maker? What would prayer become if children were always accustomed to it? What was the invitation of our Saviour? With what will he be pleased?

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14. Remember, then, that although Veneration, without the assistance of the intellect, leads to idolatry, yet properly exercised, it is one of the best organs in the brain, that no character is perfect without it, and that it assists in controlling and modifying all the other faculties.

15. The cut represents a child, with large Veneration, offering homage to an old gentleman; also a female in the act of prayer.

19. BENEVOLENCE.

DEFINITION—Kindness; sympathy; generosity; desire to do good, and to make others happy.

LOCATION—Benevolence is situated immediately in front of Veneration.

1. WHAT are those feelings of the mind,
Which always prompt to actions kind,
And sometimes e'en our reason blind,
Ruling our hearts in sway?

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14. What is the real advantage of Veneration, and how can it be abused? 15. Explain the cut. What is the definition of Benevolence? What is its location? 1. What is the influence of one element of mind?

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2. Our Saviour left the world above,
Came from the bosom of his God:
What was it filled his soul with love,
To turn our sins away?

3. An aged female, out of sight,
Dropped in the treasury her mite:
Why was it thought a deed of light,
By him who all things had?

4. I saw the rich man bless the poor,
Who asked admittance at his door,—
He fed him from his plenteous store,
And cheer'd his soul so sad.

5. I felt that God was looking too,—
Scanning our thoughts with piercing view:
He sees the course we all pursue—
Alike the good—the bad.

6. Directly in front of Veneration is a piece of brain that induces us to be kind-hearted, ready to sympathize with objects of distress, to do little deeds and acts of kindness, and to share what we have with others.

7. Benevolence exhibits itself in many different ways. Sometimes it springs from true, generous hearts, and at other times it seems to be prompted by selfishness.

8. Some benevolent persons, who have no *money*, give their *time*. They visit the cottages of the sick and distressed, and do a great many soothing things for them, which often comfort them more than money would. It is these "Little words in kindness spoken," that contribute more to our happiness than we imagine.

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2. What was the office of our Saviour? 3. What did an old woman once do, and how was it regarded? 4. In what way did the rich man do good? 5. How does God regard our actions? 6. What is the function of that part of the brain in front of Veneration? 7. In what ways is benevolence exhibited? 8. What do some give? What good does this do?

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9. Some persons give a great deal of money; but it is not always those who are the most benevolent. Many refuse to give to poor families around them, even the crumbs from their well-spread table; yet, at the same time, they give large sums of money, when the world will hear and know how much they give.

10. A lady once gave ten dollars for some charitable purpose, where all the donors' names were to be published in the paper, with the amount they gave. *Her* name was omitted in the list, and she sent to have it inserted, in order that the world might know what she contributed. *This* was not real benevolence. She did not follow the precept, "Let not thy left hand know what thy right hand doeth."

11. Boys and girls who stand around the stove, on a cold winter's morning, before the commencement of school, and make room for a poor, ragged little boy, to warm himself, who has holes in his shoes, and who has walked a long way in the cold snow, show *true* benev olence.

12. The parents of little James were poor, so that they could not provide him with nice warm clothes in the winter. They lived more than a mile from the school; but he was so anxious to improve his mind, that he was always present in season: sometimes he came in rainy and snowy weather, and as he had no woolen mittens to keep his hands warm, he often cried with the cold.

13. In a large and handsome dwelling, very near the

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9. Is the gift of money a test of benevolence? Why not? 10. Relate the anecdote of the lady. What precept did she forget? 11. How can this organ be exhibited in school? What was the motive? 12. Give the history of James.

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school-house, lived the parents of Joseph. They were wealthy, and lived in much style, and he was their only son. He was a bright-eyed, intelligent, and good-hearted boy, and his fond parents kindly provided for all his wants. He had a warm bed on which to sleep at night, warm clothes to wear during the day, mittens for his fingers, and shoes for his feet; so that Jack Frost, although ever so maliciously disposed, could not possibly do him any injury. Joseph was about ten years old, and had a sweet sister two years older.

14. These children often conversed with each other about their comfortable home, and did not forget, as too many do who live in fine houses, to think of the poor creatures in God's creation, who have no warm shelter to cover them from the storm, and not sufficient fire and clothing to keep their bodies warm. They frequently gave pennies and food to the poor and ragged boys and girls whom they saw in the street, and when they came to their door.

15. One day Joseph did not appear to feel as happy as usual. His sister Amelia was his confiding spirit, and inquired what had occurred to disturb his mind. He said that he had been thinking in what way he could render assistance to one of his schoolmates, whom he loved very much, but whose parents were so poor that they could not make him comfortable.

16. He said it was poor James, who was constantly tormented by the other boys, till he had taken him under his protection. Amelia, whose sympathy had previously been strongly excited toward the boy, said

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13. Give the history of Joseph. 14. What was the character of Joseph and his sister? 15, 16. What conversation took place between them? Did Amelia encourage him?

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she thought of a plan, but was fearful that her mother would not approve it.

17. "What is it?" asked Joseph. Amelia answered, "You know father gives to each of us spending money, and he tells us that we might appropriate it to anything we choose. *I* am willing to spare the greater part of *mine*, and, with what you can spare, we might make James very comfortable. Let us go, and ask our mother whether she is willing that we should do it." They went to their mother's apartment, and spoke to her of James, with all that eloquence which flows from generous hearts.

18. Their mother was pleased to see her children so kind-hearted and disinterested in their feelings and impulses, and told them, "That they might make any sacrifice they chose, for the happiness of others." She consented that Joseph should share his warm bed with James, during school-days; and when the children said they wished to drink water instead of tea and coffee, she told them that she would add more to their weekly allowance of spending money.

19. The heart of James was very soon gladdened, but his good fortune did not cause him to neglect his books and to be indolent; he studied with increased zeal and ardor, and advanced so rapidly that he and Joseph were the best scholars in their class.

20. In the lapse of a few years, Joseph's father proposed to send his son to the university; James, for a long time, had anticipated a separation from his school-

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17. What was Amelia's plan? Where did they go, and for what purpose? 18. What pleased their mother? Did she sanction their plans? 19. What effect did it have on James? 20. What change was finally proposed to Joseph?

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mate, whom he loved as a brother, and, therefore, was not disappointed when he heard that his friend was preparing to leave him; but he was equally surprised to receive a package, containing an adequate sum for one year's tuition in the same university where Joseph intended to go. The note was represented to have come from an unknown friend; and it stated that he would receive the same amount annually, as long as it was necessary to enable him to qualify himself for a professional life.

21. Perhaps my young friends would like to know who this unknown friend was. I will whisper the secret to you, although it was several years before James discovered it. When Joseph's father spoke to him about leaving school, he asked him what business James intended to pursue. Joseph told his father that James had not decided as yet on his course of life; but added that he had a fine intellect—one which would well repay cultivation. "Father," said he, "I have for a long time wished to converse with you on this same subject, but have deferred it from day to day, for fear of incurring your displeasure."

22. "What do you mean, my son?" "Well, father, Amelia and myself have, for several years, saved as much as we could from the allowance of money you have so kindly given to us for spending, and we have a sufficient sum to defray the necessary expenses of James for two years in college with myself, and we are willing to be even more economical than we have been for the sake of James, if you have no objection to our plan."

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20. What had James expected, and how was he surprised? 21. What might some like to know? What conversation took place between Joseph and his father? 22. What proposition did Joseph make?

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23. The father had long witnessed, with pleasure, the affection which existed between this young man and his children, as he was virtuous talented, refined, and amiable, and had not intended to separate them, but to furnish the requisite sum for prosecuting his education; but, as he wished to encourage generous feelings in his children and to teach them the value of money, he expressed himself perfectly satisfied with his son's suggestion, and added that if they did not succeed he would give the balance.

24. Joseph remitted the money to James, in a note, leaving him to suppose that it came from an unknown friend, for he did not wish to increase the feeling of obligation that James already felt toward him. Years passed and they became men; James married Joseph's sweet sister Amelia; and finally was elected governor of the state in which he lived. Joseph and Amelia had true benevolence.

25. In many Sabbath schools in the city of New York, and in other cities, the children support a minister and a Sabbath school in the western country by their contributions. By saving all their pennies, instead of spending them idly for candy, etc., they furnish clothing for many poor and ragged children, by which they are enabled to go to Sabbath school, where they may receive instruction that will be the means of restraining them from the indulgence of vicious habits. *This*, also, is true benevolence.

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23. What had the father witnessed? Why did it give him pleasure? What had been his own intentions? Why did he not tell them to his son? What *did* he tell him? 24. What did James then do? Why did he wish to conceal his plans from James? What did they finally become? What had Joseph and Amelia? 25. In what way is true benevolence exhibited in some of the Sabbath schools in New York?

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26. I will add one more illustration of this organ Once a father, in order to prove to his children that "it was more blessed to give than to receive," pursued the following course: on Monday evening he took home a fine, large orange, and gave it to John, in the presence of Charles and Mary, and then left them alone in the room. John was a selfish and acquisitive boy, and refused to give Charles and Mary any of his orange, but ate the whole of it, which caused contention and angry feelings.

27. The next evening their father brought home another orange and gave it to Charles, and left the room as before. Charles, recollecting that he and Mary wished to have some of John's orange very much, on the previous evening, concluded that he would give them some of his, but took good care to keep the largest piece himself, which, being seen by the other children, made them feel quite as unhappy as they would if they had not had any. John said, "I do not wish such a little tiny piece, it only gives me a taste without gratifying it." So *then* they quarrelled.

28. The third evening their father brought home another orange and gave it to Mary; but, before he had time to leave the room, Mary asked him for his knife. On receiving it she willingly and hastily divided the orange between her two brothers, reserving only a small portion for herself. They all sat down perfectly contented, and ate their piece of orange with cheerful and smiling faces, and expressed great thankfulness to their

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26. What did a father wish to prove? What was done the first evening by the father and the children? 27. What on the second evening, and what was the result? 28. What on the third evening, and the result of this? What did the father ask?

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father because he had made them so happy. "But how is it," said their father, "that you are so happy this evening? Did I not hear last night, and the night previous, angry words and noisy actions? and yet I brought you an orange each evening, the same as now.

29. "I must see if I can ascertain the reason; John, what did you do with your orange Monday evening?" John hung his head with shame as he reluctantly owned that he ate it all himself. "Charles, what did you do with your orange last evening?" Charles, with much promptness, said boldly, although he felt the reproofs of his conscience, "I shared it with John and Mary." "Shared it equally, I suppose," said his father. Charles did not wish to expose himself, but he again heard the gentle voice of conscience, which said tell the whole truth, so he confessed that he reserved the largest piece for himself.

30. "Well, Mary, what did you do with yours?" "Oh! I know," said he; "you gave it nearly all away, and kept but a small piece for yourself. *Your* happiness consisted in *giving*, while that of John and Charles was in *keeping*. Children, the Bible says, 'It is more blessed to *give* than to *receive*.' You see now what it means; for Mary was much happier with her *small* piece of the orange, than John was with the *whole* of his."

31. The cut represents true benevolence. Children, which will *you* do? cultivate these kind, and generous

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29. What did he ask John? What was John's reply? What did he ask Charles, and what did Charles reply? What was he obliged to confess? 30. What did he say Mary had done? How did the father explain this to the children? 31. What does the cut represent? Between what must children choose?

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feelings, this sympathy to relieve distress, and render those happy by whom you are surrounded? or will you, as you increase in years, increase in selfishness, unkindness, and rudeness?

32. God gave us social qualities of mind for a particular purpose; he also gave us selfish propensities; and we see that he has implanted into our very natures, moral qualities. We have a Conscience to tell us when we do right or wrong, which will admonish us as truly and certainly, if not perverted, as the pendulum of a clock swings every second. Then comes smiling Hope to cheer us under any trials or disappointments which we may meet on our way, and says, if we cannot resist temptation the first time, try the second, till we do succeed.

33. Then, Marvellousness gives us a belief in the God who made us, and sustains us by his protecting care. Veneration says, "Reverence and worship that God;" and, lastly, Benevolence says, "Do unto others what you would have others do to you; heed the tale of wo, and sympathize with those in distress." It is not enough, children, to think only of the wants of our bodies, but we have higher duties to perform; and we should consider them as duties, important to be fulfilled. God gives no faculty, without enjoining on us the duty of *educating* that faculty. If we have an arm, we must use that arm, if we wish to keep its muscles in order; and, if we have the organ of Veneration, we must exercise that organ; and so on, with the others.

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32. What have we beside social qualities? Explain the uses of Conscience and Hope? 33. What are the functions of Marvellousness, Veneration, and Benevolence? Of what should we think beside our bodies? What is said of all our faculties? Give the example of the arm.

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34. Some may say, I have very little of that organ, or of some others. There is a *natural* difference in the heads of children. If you look at the heads of every one of your schoolmates, you will see that some are long, others broad, some high, and some low. There is a corresponding difference in the disposition of different children. Some are naturally amiable, and others the reverse; yet all can improve if they have the desire. If you are conscious of the want of Veneration, if you feel inclined to treat superiors with disrespect, try to cultivate deference and humility, restrain your feelings, and that organ will increase in size; the brain will enlarge, and will press out the skull.

35. Again, if you are inclined to selfishness, and have no sympathy with others, or to be deceitful, and to speak without regard for the truth, just recollect that it is no excuse for you to say, *you cannot help it* because you were *made* with either an excessive or deficient organization; because you *can* restrain excesses, and *can* cultivate deficiencies.

36. Learn, then, while in the days of your youth, before your minds are chained and bound by strong habits, to cultivate your whole moral nature, if you wish to become useful and happy members of society. You may be intellectual, you may be social, but the *moral* nature is the "*crown of glory*," and nothing can atone for the absence of it, or supply its place.

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34. What excuse will some make? Is there any *natural* difference in heads? What? What corresponds to this? What is the duty of all when they are conscious of any deficiency in Veneration? What use will it be? 35. What idle excuse do some children make? Why is it not correct? 36. What should children learn and remember? What is the moral nature as compared with the others?

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CHAPTER VI.

SEMI-INTELLECTUAL SENTIMENTS.

We shall now examine a class of faculties that are called Semi-Intellectual, because they are closely allied and dependent on the intellect. The first in order is Constructiveness.

20. CONSTRUCTIVENESS.

Definition—Ingenuity; desire to use tools; to construct; to invent machinery.
Location—Constructiveness is situated on each side of the head, immediately in front of Acquisitiveness.

1. To construct is to build or make anything. Everything which we have around us has been made or constructed. We could not, therefore, possibly live without

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What is the subject of chapter sixth? Why are these so called? What is the definition of Constructiveness? What is its location? 1. What is meant by constructing?

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the organ of Constructiveness. Everything which we have that is useful and convenient, depends on it; our churches, our houses, our carriages, our railroads, our steamboats: without it we could scarcely sleep, eat, or do anything.

2. This organ, like all the others, exhibits itself very differently among different nations.

The Indians lived in huts, called wigwams. The most important of their occupations consisted in hunting, fishing, and fighting; hence, they used *their* Constructiveness mostly in building their boats or light canoes, their bows and arrows, and articles for the battle-field. The Indian mother carried her infant, or papoose, on her back, and covered it with the skins of wild beasts.

3. The white man with perhaps no more Constructiveness than the Indian, does not build rude huts of mud and clay, but constructs fine houses of brick and stone. He makes beautiful chairs on which to sit, soft carpets on which to walk, instead of walking on the logs or ground.

4. The Indian is perfectly contented to sit down to his rough table, with a stone for a plate, and to eat his half-cooked food of wild beasts with his fingers; while the white man brings his family around the neatly covered board, and eats his richly prepared food in dishes and with utensils which his Constructiveness has invented. The white mother has a soft, comfortable bed on which her little infant reposes; she has a carriage to draw it out, and covers its body with warm clothing.

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1. Why is this an important organ? 2. What is said of the Constructiveness of the Indian? How does the Indian mother carry her infant? 3. What does the white man construct? 4. What is another difference between the Indian and white man?

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Every day, man is constructing something new for the convenience of his neighbors, or to attract attention.

5. The channel into which this faculty is directed, depends greatly on the influence of other organs. The Indian has Constructiveness joined with Combativeness and Destructiveness; hence, his mind is exercised in manufacturing implements of war. Others, who have large Veneration and Marvellousness, think that if God be worshiped, a suitable place should be erected for his people, and they, therefore, construct houses of religious worship. Some, with Constructiveness joined with Ideality are successful portrait-painters, poets, and artists.

6. Benjamin West became celebrated as an artist. He developed his extraordinary talent when only nine years of age.

Those who have large Tune, with Constructiveness, invent different kinds of music and musical instruments. Mozart, Haydn, and others, were good musicians when mere children. There are other persons, having a scientific turn of mind, who invent railroads, steam-engines, magnetic telegraphs, telescopes, magic lanterns, etc., etc.

7. The picture represents a person with his tools around him, in the act of making or constructing.

8. Children show this organ by making little boats, wooden houses, all kinds of little images, and in drawing and sketching on slates and paper.

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4. What is man doing every day? 5. On what does the mode or channel of the exhibition of this organ depend? Give an example in the Indian. In what way are Constructiveness and Veneration sometimes joined? Constructiveness and Ideality? 6. Who was Benjamin West? In what way are Tune and Constructiveness joined? What are some of the other ways in which this organ is developed? 7. Explain the cut. 8. How do children show Constructiveness?

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9. This is a very profitable way in which you can spend your leisure moments. If you have any inclination to use tools, to paint, draw, or sketch, do not be discouraged if your first attempts be unsuccessful; but exercise your organ of Hope, and try again, and you may, by patience and perseverance, become distinguished as a master workman. The profession of the mechanic, the inventor, and constructor, is as honorable as any other; remember that

> "Honor and shame from no *condition* rise,
> Act well your part, *there* all the honor lies."

10. Little girls show this development in cutting and fitting dresses for their dolls, and in sewing together, very nicely, little bits of cloth in the form of squares and diamonds—I mean "patch-work."

11. All animals that build their houses, have broad heads in the region of this organ. The lion and bear wander among the deserts, and make the forests resound with their roar. They can make their lair—the place where they sleep—wherever they chance to be, on the mountain top or in the valley, but do not build a house. The beaver, on the contrary, cuts down trees with his teeth, and builds his hut in a particular place. The bird collects bits of straw and mud, and constructs her nest; and so of other animals and insects; but if you should look at the heads of these different animals, you would see that *every* one which has anything to do

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9. How can children spend their time very profitably? What is said of the profession of the mechanic? What should children remember? 10. How do little girls show this organ? 11. What is true of all animals which build their houses? What difference is there between the lion and the beaver? What is a custom of birds? What difference is there in the heads of these different animals?

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with building, has a broad head in the region of Constructiveness; and the opposite is also true; that those which have no *use* for this organ, have not the *development*.

21. IDEALITY.

DEFINITION—Refinement; love of improvement, perfection, and the beautiful in nature and art; love of romance, fiction, and poetry.
LOCATION—Ideality is situated between Constructiveness and Marvellousness.

1. IDEALITY is that faculty of the mind that makes us pleased with everything that is lovely and beautiful. We cannot help admiring the gentle streamlets and rivulets, the little winding brooks, the trees and the flowers, the little warbling birds and the sportive lambkins, the moon and the stars, a beautiful painting or picture. Even the little child delights to ramble in the woods, and cull the beautiful flowers, that appear to have grown for no other purpose than to please the eye, and delight the mind.

What is the definition of Ideality? What is its location? 1. With what does Ideality make us pleased? What do we admire? What does the child delight to do?

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2. God might have created this world without trees and flowers, but he saw fit to clothe the earth with beauty; he peopled the fragant groves with warbling birds, covered the ground with a velvet carpet, caused purling streams to flow gently through the valleys, and filled the fields and meadows with beautiful flowers, which delight us with their odor; all, all to gladden the heart of man, to subdue his passions, to make him feel His goodness, and to call forth his love and gratitude.

3. The cut represents a man filled with admiration at beholding the works of nature.

4. Ideality has a tendency to elevate the mind; and if it is joined with the moral organs, it makes the character more pure, gentle, and refined. This organ is more developed in civilized than in savage man, and is the cause of one of the great differences in their customs and habits of life.

5. One way by which you can cultivate this organ, is—if it were possible and convenient—to have plots of ground which you could call your own, where you might sow the seeds, and watch the growth of the tiny leaflets and flowers. This would be a most delightful amusement, as well as healthy exercise.

6. Children, I hope that every one of you will study what is called botany, as soon as you are old enough. This will explain to you all about the seeds, the leaves, and flowers, and it will teach you to observe every little part of the smallest flower.

7. Some show this organ by their great imagination.

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2. In what way might God have created this world? What did he do? For what purpose? 3. Explain the cut. 4. What is the tendency of Ideality? Of what is this organ the cause? 5. In what way can it be cultivated? 6 Why would children be pleased with botany?

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They not only dream by night, but are in reveries during the day. I have known little girls to give a ame to all the chairs and furniture in the room, and imagine them to be real, living beings.

8. Some persons with large Ideality, write poetry. Young children sometimes write verses, which they could not do if they had no Ideality.

B. SUBLIMITY.

DEFINITION—Sense of the vast, grand, sublime, and romantic in nature and art.
LOCATION—Sublimity is situated between Ideality and Cautiousness, just above Acquisitiveness.

1. THE function of Sublimity resembles that of Ideality, yet it is somewhat different. Ideality gives a fondness for the lovely, pure, perfect, elevated, and refined in nature; while Sublimity gives a love of the vast, grand, sublime, and majestic. One with large Sublimity

7. In what other way is this organ shown? What do little girls sometimes do? 8. What is another effect of Ideality? What is the definition of Sublimity? What is its location? 1. How do Ideality and Sublimity differ?

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would enjoy scenery similar to that represented in the cut. It is designed to represent the waters rushing and tumbling over the rocks at the Falls of Niagara.

2. Some, when they witness this interesting and sublime view of nature, are *pleased* for the moment, others are filled with *awe* and *admiration*, and feel that their souls are not large enough to drink in all its beauties. There are some who are happy and contented only in the country where they are surrounded by nature in all her vastness and beauty. They love the cragged precipice, the snow-capped mountain, the raging cataract, the burning volcano, emitting its fire, smoke and lava; they love the peals of rolling thunder, the forked lightning; and, if not conscious of danger, would like to sail on the mighty ocean when the angry waves and billows rise around their tempest-tossed ship.

3. There are others who have very little of either Ideality or Sublimity, and are not pleased with nature's works, but care only to gratify their own selfish wants.

4. They have no time, they say, to think about such things. Children, love and observe nature—especially those who do not live in the city—ramble in the green fields, gather the modest violet, the sweet anemone, the fragrant rose, admire the beautiful moon and twinkling stars, wander by the winding brook, and enjoy the works of nature in all their loveliness, grandeur, and sublimity. In loving nature, you will be more inclined to love nature's God.

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2. What are the different emotions of persons who see the Falls of Niagara? What things in nature do some enjoy and admire? 3. How do other persons differ from them? 4. What directions are given to children? What will result from loving nature?

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22. IMITATION.

Definition—Ability to imitate, copy, and work after a pattern; mimicry.
Location—Imitation is situated on each side of the head, next to Marvellousness, just below the side of Benevolence.

1. No one will deny the fact that we are all more or less creatures of imitation. Everything which children do results from imitation. When they walk, it is because they have seen others use their feet for the same purpose. The first word they speak, is like one they have heard some other one use.

2. A child can learn to talk the French and Greek languages as readily as he can the English, provided he always hears his parents speak in those languages; for mere *words* convey no *ideas* to the mind of the child, except those taught by the parents. He could as readily understand that père—the French word for father—means father, as that f-a-t-h-e-r was the correct

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What is the definition of Imitation? What is its location? 1. What must all admit? What is said of the imitation of children? 2. When could a child learn other languages as readily as the English? Why? What could he understand? What could he learn?

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word. He can learn to eat sitting at the table, with knives and forks, or he can learn to eat in a reclining posture like the Turk.

3. The reason why different children conduct so differently, is, because the people with whom they associate have different ways and manners, and these different ways and customs are copied or imitated. Those children who hear swearing, scolding language at home, will be very likely to swear when they are away from home, and scold smaller children when they have an opportunity. Those who never hear coarseness or rudeness at their home, are generally refined in their manners, and are free from bad habits.

4. Children, too often, imitate bad, in preference to good qualities. It has been remarked by teachers, that one bad, malicious boy, exerts much more influence in school than very many good ones. If the scholars see that one refuses obedience to the requests of the teacher, they think that they can take the same liberty, and have equal privileges.

5. Said Andrew's mother to him one day, "I should like to have you go on an errand for me." "I do not wish to go," answered Andrew; "cannot William do as well, for I wish to play, and it is nearly time for school?" "But I wish to have *you* go," said the mother. Andrew loved his mother, and if he had stopped one moment to think, he would have tried to please her; but he liked to gratify his selfish wants too often, and did not check his turbulent and unpleasant feelings; so he replied, very

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3. What is the cause of the difference of behavior in different children? What examples are given? 4. What do children often do? What influence has one bad boy, and why? 5. Relate the anecdote of Andrew and his mother

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naughtily, "I won't go," and ran off to school. His mother intended to correct her son when he returned from school, and said no more to the other children, who had heard the above conversation.

6. Soon after this she called to her little boy George —who was generally very obedient—to come into the room. The little fellow, who was not angry, cried out as loudly as he could, "I won't, mother; I wish to stay here."

7. I have told you the above, in order that you might see how powerful imitation is in a family. I hope all who have younger brothers and sisters will be careful, both with regard to what they say or do in their presence, that they may not encourage evil habits and wrong propensities, if they are actuated by no *higher* motive.

8. Imitation, joined with Constructiveness, enables a person to do a variety of work, and if Ideality be large also, it gives a finish, neatness, and taste, to whatever is done. It enables a person to paint portraits, to draw a correct likeness or resemblance, and to copy the scenery of nature, as in the cut at the commencement of this organ.

9. The Chinese people have this organ large, without much intellect to guide them. An individual, in this country, sent a cup and saucer to China, to have a set of crockery made there, similar to the articles sent. The crockery came home with a crack in every article;

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6. How did this affect George? 7. For what purpose were the above anecdotes related? What should brothers and sisters avoid? 8. What do Imitation and Constructiveness enable a person to do? 9. Have the Chinese imitation? What is said of the imitation of the Chinese, and the result of it?

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and, on inquiring the reason, it was stated *that those sent had a crack in them!* caused on the voyage.

10. Every country has its peculiarities, its manners, customs, and dress, so that an Englishman or Frenchman appear very differently from an American, and can be easily discovered. If a person has large Imitation, it is very easy for him to acquire these different peculiarities, so that, if he is in a foreign country, he can act as foreigners do. "When he is at Rome, he can do as the Romans do."

11. Some show this organ of Imitation by mimicking everything they see or hear. This is harmless, unless the infirmities and weaknesses of others are ridiculed, or their feelings injured. In either case the result will be evil.

12. Parrots have a large organ of Imitation. It is this faculty that enables them to repeat "Pretty Poll," and numerous other phrases. They attach no particular meaning to what they utter, but talk and chatter those words only that have been taught them by imitation; for they have no reason or intellect to guide them.

13. Mocking-birds chirp like a chicken, cry like a child, mew like a cat, and imitate all kinds of birds and animals; but it is those only which have broad heads in the region of Imitation, that can be taught anything. A lady informed me that she had had a number of these birds, but could not succeed in teaching those anything which had narrow heads, but found no difficulty in teaching those whose heads were broad.

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10. What is there in every country? What are the advantages of this organ? 11. What is another way in which it is exhibited? When is the result evil? 12. What is said of the imitation of parrots? 13. Of the imitation of mocking-birds? What kind only can be taught anything?

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14. The monkey, that little mischievous creature, and orang-outang, appear to be almost equal to human beings; for they can do almost everything which we can do, but to talk. I will relate to you a story about a monkey, which I used to see every day. He was a most remarkable monkey. There were a great many cats—and some very fine ones too—in the neighborhood where he lived; but he was as particular in the choice of his associates, as many ladies and gentlemen about their company. So there was only one particular cat that he would deign to notice, or permit to come near him.

15. This cat and monkey appeared to have a great fondness for each other. They would play and eat together, but the monkey would always assert his rights; and, whenever the cat put anything into its mouth, which the monkey wished, he would open the cat's mouth with his paw and take it out, yet they never quarrelled, for the peaceable cat would yield as a matter of course.

16. Monkeys certainly have very large Imitation, for they can be taught to do almost everything. There was once a very mischievous monkey on board of a ship at sea: one day several of the seamen looked for their caps, and discovered that the monkey had ascended the tall mast with them in his paws. How to get them again they could not imagine, for there sat the monkey many feet above them on the top of the mast, looking as wise as a sage, where, if he had made one false movement, both himself and caps would have been precipitated into the water. One of the men had heard

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14. What is said of the monkey and orang outang? 14, 15. Relate the anecdote of the monkey and cat. 16. Relate the anecdote of the monkey and the caps

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of their disposition to imitate, and thought he would try an experiment; so he threw something up into the air, which fell on the deck The monkey who watched his actions, threw one of the caps into the air and down that fell on the deck. They continued this experiment until they recovered all their caps, much to the satisfaction of the monkey as well as of the men.

17. If you look at the following cut you will see that it represents a monkey in the act of examining the head of a cat. He has a skull on the table at his side, and certainly has a very wise-appearing countenance, and imitates his master very well.

18. Children, exercise the organ of Imitation, but learn to make this distinction, that you should recollect only what is *worthy* of remembrance; copy the good, but neglect the evil.

17. What does the following cut represent? 18. What distinction should be made in reference to this organ?

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23. MIRTHFULNESS.

DEFINITION—Playfulness; perception of the absurd, ludicrous, and ridiculous, ability to joke, make fun, and ridicule.

LOCALITY—Mirthfulness is situated on each side of Causality—an organ which I shall describe hereafter—and gives breadth to the forehead.

1. "WORK is done,
Play's begun,
Now we have
Our laugh and fun.
Happy days,
Pretty plays,
And no naughty ways."

2. I need not tell you that children laugh, play, and make fun; this you know as well as I. The organ of Mirthfulness was given to us for the chief purpose of creating cheerfulness and playfulness of spirit, of saying witty and humorous things, and making us lively and mirthful. A great many people laugh who have no wit, so that it is not always those persons who laugh the loudest that have this organ the largest.

What is the definition of Mirthfulness? What is its location? 1. Repeat the first paragraph? 2. Who exercise this organ, and for what purpose was it given to us? Do all those who laugh have this organ?

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3. Mirthfulness also acts with the other organs. If the social feelings are large, it is then manifested in the social circle. Some are always welcomed wherever they go, because they infuse a lively, witty, and cheerful spirit all around them. The mind is diverted from the cares and troubles that crowd on it, and forgets its own sorrows in company with merry and cheerful friends.

4. Those who have large Mirthfulness and Combativeness, are continually teasing and vexing their friends. Some boys tease their sisters in every possible way, not because they like to gratify this strong feeling of their natures, which they often do to the great annoyance of those who are made the subject of it, especially if they have not this organ.

5. The Irish are said to be very witty as a nation. Real wit produces laughter, and laughter is said to promote digestion. It is proper to laugh and make fun at suitable seasons, always remembering, however, not to make jokes which may injure the feelings of any one. It is not right to ridicule the peculiarities of individuals, either their voices, their manner of walking, or their dress; for *all* persons have their peculiarities, of which sport *might* be made. Especially avoid making fun of the aged, for in a few years you will lose your light, elastic step, your limbs will become numb and stiff, and you may perhaps totter along, and be, like them, crippled and decrepit old men and women, and you will only wish to be ridiculed.

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3. Explain in what way Mirthfulness and the social feelings act. Why is this a good combination? 4. In what way does it combine with Combativeness? 5. When should we use this organ, and when not? What should children avoid? Why?

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6. Learn to be cheerful, lively, animated, and mirthful; you will enjoy better health than if you are always sober and sedate. A bow is stronger for being sometimes unbent; so the muscles are stronger for being often relaxed, and the mind is more active and vigorous when we indulge in innocent recreation; for, though

> "All play and no work makes Jack a mere toy,
> All work and no play makes him a dull boy."

7. The cut represents a company of merry gentlemen who are listening to anecdotes.

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6. What disposition should children cultivate? Why? 7. Explain the cut.

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CHAPTER VII.

OBSERVING, PERCEPTIVE, AND KNOWING FACULTIES.

We have now come to the purely intellectual faculties. These are divided into two general classes, the Perceptive and Reflective Faculties. We shall first speak of the Perceptive Faculties. Their general use or object is to look, see, remember, collect facts and anecdotes, and remember them. I will first tell you about

24. INDIVIDUALITY.

DEFINITION—Observation; power of seeing and noticing objects; desire of looking at everything; curiosity.

LOCATION—Individuality is situated at the root of the nose, in the lower part of the forehead, and, when large, gives fulness there.

1. INDIVIDUALITY is one of the first organs that is developed in the mind of the child; and it is a wise order

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What is the subject of chapter seventh? Into what two classes are these divided? What is the use of the perceptive faculties? What is the definition of Individuality? What is its location? 1. Of what use is this organ to the child, and when is it developed?

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of nature that such is the fact; for the infant is ignorant of everything around him. It does not even know or recognize its own parents, and has no idea whatever of any object in creation. Its mind is like a blank book full of leaves, but without ideas and impressions.

2. What is the first thing that the little tiny tender thing does? It opens its little eyes, and looks, looks; it gazes at everything around it, and the little creature appears to be delighted when its attention is attracted to any bright object, as the light, or fire.

3. The child observes, and by observing it distinguishes its mother, and is conscious when she is present. The older it becomes, the more it looks and notices; and when Imitation has taught it to prattle and talk, it commences to ask questions, which is as natural to the child as to see.

4. You all know, children, that you can understand much better what flowers, birds, and animals are by seeing them, and when you receive instruction in school you know how much easier it is for you to understand, when your teacher shows you something which represents what she is talking about. Those who are born blind can learn a great deal, but they can comprehend but a very small portion of what they are deprived.

5. There was quite an aged gentleman who was so near-sighted, that he was unable to see the stars at night, some person procured a pair of spectacles for him, by which means his sight was so much improved that he could behold these worlds of beauty and light. His soul was filled with admiration, and he could never be satisfied

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2, 3. In what ways does it show this organ? 4. In what way can children best understand what they learn? 5. Relate the anecdote of the gentleman who was near-sighted?

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in beholding them. He said that he never had an idea that they were half as beautiful.

6. Individuality is generally large in children, yet if it be not cultivated and strengthened by use, it will not be of much service. Two persons walk together in the street of a city; one will notice every house, every square, and every man and woman he meets, and will see everything that is to be seen; while the other only takes half a glance, and could not tell, the next time he passed through the same street, whether he had ever been there before or not. Travellers who visit the same countries give very different descriptions of the same places; because they have different degrees of Individuality, joined with other organs.

7. This organ sometimes gives curiosity to see and hear everything that transpires around us. It is this feeling of curiosity that probably disposes some children to be so meddlesome when they commence walking. They extend their hands, and put their little fingers on everything they see, and frequently do a great deal of mischief, while they are only seeing, seeing, looking, looking, just as they were designed to do.

8. The child crawls into the closet and pulls over the box of flour on its mother's clean carpet. This is amusement to the little one, and, unconscious of the mischief it has done, its little imagination has been exercised by thinking how beautifully the carpet was painted white.

9. You must not only look and observe, but you must

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6. In whom is this organ generally large? In what way do persons show the strength or deficiency of this organ? 7. What feeling does this organ give? How do children frequently gratify it? What is probably their motive? 8. Illustrate this by the child.

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learn to distinguish the difference between different things. Wherever you go, you must notice everything and use your Individuality.

10. If you should attend the museum, look distinctly at everything before you, and then ask questions about the birds, animals, and images. When you see an individual, look at his eyes, his hair, his nose, etc., and try to remember them. When you see a picture or engraving, observe every tree, figure, house, etc. In this way, and in this way only, you will gain much information, which will always be of service to you.

11. Of what use is your Benevolence if you do not discern the difference between true objects of charity and pretended beggars? You might give away all you possess, without benefiting those who needed alms. Of what use is your Constructiveness, if you do not notice the manner in which things are fitted and made? It will profit you nothing. Of what use is Ideality to you, unless you are delighted to observe the beauties and sublimities of nature? The rainbow would pass away before you noticed it. You could not appreciate the works of art, or of nature, merely because you do not see them.

12. In the cut, the gentleman is looking with his telescope at the stars. If he had no Individuality, he would not be able to perceive them, neither would he have any *inclination* to look at them.

Children, observe, look, take notice, and every day will add to your store of knowledge.

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9. What must you do beside look and observe? 10. In what ways can much information be gained? 11. When would Benevolence b useless? Constructiveness? Ideality? 12. Explain the cut. What organ does he use? What general direction is given to children?

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25. FORM.

DEFINITION—Idea of shapes, outlines, faces; ability to commit to memory.
LOCATION—Form is situated between the eyes, and, when large, gives width there.

1. IF there were no form or shape to objects, this world would be a state of confusion; but everything we see has a regular form, and a regular shape. By means of Form and Individuality, we learn to distinguish one person from another—one book and one house from another. When we read, we remember different words by their form. We learn to spell by remembering the shape and forms of the letters.

2. Those who have large Form can learn to draw easily, and can make correct outlines and proportions. They can also commit to memory what they read or hear. There are some who can repeat, after they have studied their lesson, every word, just as it is in their book. Some can repeat almost the whole Bible, but it is only those persons whose eyes are wide apart where the organ of Form is located.

3. Such persons can learn to read easily, and can generally remember what they read much better than

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What is the definition of Form? What is its location? 1. What would be the result without Form or shape? What do we learn by means of Form and Individuality? 2. What are the advantages of this organ?

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those who are narrow between their eyes. This is a fact that universally holds true in every instance. Children, notice your companions, use your Individuality, and see if those in your class who generally recite their lessons the most promptly, have not a wide space between their eyes.

4. Dr. Gall, when a young man, noticed his schoolmates, and found it to be unexceptionably the case. This organ of Form was one of the first that he discovered, and it was one in which he was very deficient.

5. The cut represents different forms, figures, shapes, and proportions.

26. SIZE.

DEFINITION—Ability to judge of the length, breadth, height, proportions, and distances of objects.

LOCATION—Size is situated next to Form, at the commencement of the arch of the eyebrow.

1. IF we examine this organ, we shall perceive that it is as important as its neighbor, Form. By Size, we

3. What fact is universally true? What can all children notice? 4. Who discovered this organ? By what means? 5. Explain the cut. What is the definition of Size? What is its location? 1. What is the difference between Form and Size?

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learn that one object is larger or smaller than another. Form gives us a knowledge of the shape, while Size enables us to tell the difference between their shape.

2. Form would tell us that the apples in the cut are round, while Size would teach us that one was smaller than the other, and that one pillar was larger and taller than the other, although in each case both have the same shape. Some have this organ so large, that they can measure correctly by the eye, while others have very limited ideas of the difference between objects.

3. Children sometimes have wrong views on this subject. They are very apt to imagine that the *smallest* piece of anything is given to them; while, if *they* are the givers, they are inclined to imagine that they *give away* the *largest* piece, which is frequently *not* the case.

4. When persons have large organs of Marvellousness and Size, they exaggerate, or greatly misrepresent what they see or hear. "Why, I saw a horse as big as an alligator," said one. "My sister is twice as big as I," said another. "Why, mother, the man had nearly fifty bushels of apples"—when in fact he had only five or six—said a little boy to his mother, when she told her son to carry back an apple he had taken from the gentleman without his permission.

5. A mother told me that she once heard her two little boys conversing with each other. Said George, "I have seen a railroad that reached two miles;" little Henry looked into his brother's face, and said, "I saw one which would reach as far as Lowell," which was

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2. What does large Size enable some to do? 3. What wrong ideas do some children have in reference to Size? 4. What are the influences of large Size and Marvellousness? Give examples. 5. Relate the conversation between Henry and George.

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five or six miles from the place where they lived. These little boys had no correct ideas of distances, but the distance to the next town appeared very extensive. Little boys and girls frequently exaggerate very much when they speak of the different sizes of things.

27. WEIGHT.

DEFINITION—Powers of balancing, shooting, walking on the ice; perception of gravity.

LOCATION—Weight is situated on each side, next to Size, in the arch of the eyebrow.

1. WE can perceive that bodies have different forms, different sizes, and different proportions, but we require a separate organ to ascertain that one body is heavier than another. This organ we have in precisely the best position in which it could be placed, next to Size and Form.

2. When persons have large Form, Size, and Weight, they can, by practice, become good marksmen, can aim

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5. Of what had these boys very little idea? To what does this organ lead frequently? What is the definition of Weight? What is its location?
1. What is said of the situation of Weight? Why is Weight necessary?
2. What does large Form, Size, and Weight enable persons to do?

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and shoot correctly. William Tell was doomed to death, for attempting to incite his countrymen to rebel against the yoke of tyranny, which their cruel king had imposed on them. His sentence was changed. He was commanded to shoot an apple from the head of his son, who was placed several yards from him. Life was granted to him on this condition only.

3. This son was the pride of his soul; and the father would have preferred to sacrifice his own life, of which he was weary, rather than that even one hair of his son's head should be injured. But the decree had gone forth, and the father drew his unerring bow. The arrow stopped not in its flight, but sped its way, cleft the apple in two, and with it, fell to the ground. William Tell must have possessed large Form, Size, and Weight.

4. He also had large Firmness, undaunted courage, and resolution; for, as the applauses of the surrounding multitude rose in the air at the exhibition of his skill, an arrow, which had been concealed under his coat, fell to the ground. The king, perceiving this, immediately inquired what he had intended to do with it. With persevering boldness, Tell replied, "To slay thee, tyrant, had I slain my son."

5. By means of Weight we are enabled to balance our bodies in walking; we might learn to move our feet by Imitation, yet we should be continually falling if we could not balance our bodies properly. The stars and the moon would come tumbling down to the earth if they were not balanced, houses would shake and fall, and everything would be in a confused state.

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2. Relate the anecdote of William Tell. 3. Why was this a peculiar trial? What was the result? 4. In what way did Tell show great Firmness and resolution? 5. What are the advantages of this organ?

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6. There is what is called the attraction of gravitation, which keeps us all in our respective places. Another name for this gravitation is Weight. If there were no air, all bodies would be the same, as to their weight. It is the organ of Weight which gives to rope-dancers their great power.

7. A gentleman told me that he once saw a girl walk on a rope twenty feet in length. This rope was ten feet from the ground, over the audience. He also saw a man roll a wheel-barrow on a rope, in which was his own child. These persons had not only a very large organ of Weight, but it had been trained and cultivated.

8. Children frequently exercise this organ by climbing the backs of chairs, skating on the ice, walking on stilts, sliding or coasting down hills on the snow, and in a variety of other ways. Cultivate this organ and you will save yourselves many tumbles, sore and bruised limbs.

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6. What do we mean by Weight? What is also necessary? What class of persons does it assist? 7. Relate the anecdote of the feat of the girl and the man? 8. In what way do children exercise this organ? Why should it be cultivated?

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28. COLOR.

DEFINITION—Perception of colors, shades, hues, tints; delight in painting.
LOCATION—Color is situated next to Weight, in the arch of the eyebrow.

1. As we look abroad on the face of nature, we see a rich variety of hues and colors. If everything had been black or white, we should have become weary with beholding it; but everything in nature is colored in those proportions that please our eyes.

2. Even a single ray of light can be separated into seven beautiful colors, by means of a three-cornered or triangular piece of glass, called a prism. We have the green grass for a carpet and the blue sky which is variegated with different tints; the beautiful rainbow appears at times in the clouds, as the "bow of promise," to please us by its presence. As we find all these different tints and hues around us, we have also an organ given to us, expressly for the purpose of enabling us to admire and appreciate these different tints.

What is the definition of Color? What is its location? 1. With what is nature adorned? Why is this for our happiness? 2. What is said of a ray of light? What are some of the different colors in nature? What is the design of the organ of Color?

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3. Those who have the organ of Color largely developed, are much pleased with flowers and gardens; they are fond of painting, and selecting colors. This organ, like all the others, is capable of much cultivation, and in some persons is quite deficient. A gentleman who had this organ small, could not remember the color of his wife's eyes, or tell the difference between light and dark shades.

4. He attempted, when a lad, to act as a clerk in a store, but discovered that he had mistaken his calling; for he had to take down several cases of goods before he could suit his customers to the kind and color which they wanted.

5. If they wished a certain kind of gloves, he was compelled to show them several different colors, that they might make a selection. If this gentleman had only known of the deficiency of this organ in his brain, he would have endeavored to cultivate it, and would not have placed himself in a situation where a correct knowledge of it was required so often during the day. He would have chosen some other business, for which he was better adapted. Hence all should strive to know their own faculties and power.

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3. In what way is this organ exhibited? What are the effects of its deficiency? 4, 5. Relate the fact of the gentleman in whom it was deficient. In what way could he have avoided all difficulty? What follows as a truth.

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29. ORDER.

DEFINITION—Neatness; arrangement; system; method.
LOCATION—Order is situated next to Weight, in the arch of the eyebrow.

1. WHEN a child, Maria attended a school, in which there were numerous wise sayings, written in large letters, and placed in conspicuous parts of the room. One of these was, "A place for everything, and everything in its place." She then thought it a very singular sentence for the school-room, and wondered of what use it was. She had not been there long as a scholar, before one of the girls came to her in haste, and asked her if she would lend her her slate-pencil, having, as she said, misplaced or lost hers.

2. She accordingly handed her hers. She told her that it was the only one she had, and wished to have it soon. Presently another girl came to borrow her slate —as she had left hers at home—and promised that she

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What is the definition of Order? What is its location? 1. What was there peculiar in the school-room where Maria was a scholar? What did she think of it. 1, 2. What favors did some of the scholars ask, and what did she tell them?

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would certainly return it before Maria needed it. She took the slate, and went to her seat. Very soon another girl came, and asked for Maria's arithmetic, as a leaf was torn from hers.

3. On looking around, Maria found this to be quite a common practice, and, supposing it to be only a manifestation of a neighborly spirit, thought no more about it. Soon school was commenced—for all this took place before the bell rang for the scholars to go to their respective places.

4. It was nearly time for Maria to recite her arithmetic lesson; so she looked into her desk for her slate and pencil in order to work out her sums, not thinking that she had lent them; but lo, they were not there—her arithmetic had gone also; the result of it was, that she failed in her lesson. The teacher inquired the cause; and, when Maria told him, he pointed to the wall, and said to her schoolmates, "A place for everything, and everything in its place." Maria now comprehended, in a slight degree, its use in the schoolroom; and every day became more convinced that it was an important consideration, for sometimes the chalk "*would walk away*," as the girls said, then an atlas would be missing, then a book, and so on. Not that this school was disorderly, and without government—far from that—but, in every school, there are those who have no particular place for their books, and other apparatus, and are continually losing, and borrowing from others.

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3. How did she account for this? Was this in school hours? 4. What did Maria do after the school had commenced? What was the result? What did her teacher say? What convinced Maria that this was an important maxim? Was this a disorderly school? Who are in every school?

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5. Children, I wish you to think of what I have said, and then you will notice many things that now escape your observation. You will find that all those persons who have the little space next to Color swelled, or largely developed, are always neat and orderly. They are never at a loss to find anything that belongs to them even in the dark.

6. Different persons exhibit the influence of this organ differently. One person may be very neat and orderly about the house, as is represented in the cut. Others are systematic in all their plans, thoughts, arrangements, papers, etc., so that the organ of Order is influenced much by other faculties.

7. I do not mean to say that if a person has a large organ, he or she *cannot help* showing or developing it, and if it be small, that it is impossible for him or her to use it, but I *do* say, when we are conscious that we have an organ naturally small, it is our duty to exercise it, that it may increase; for a character is more perfect when all the organs are fairly developed, without extremes.

8. When children have small Order, they put their hats and bonnets in one place, their gloves in another, strew their books here and there, and their playthings over the floor in wild confusion, which often requires the servant or their mothers to be almost constantly employed in putting them in their proper places. Then when Mary intends to take a walk, she has to hunt for

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5. What will children find to be true if they take much notice? 6. What are some of the different ways in which this organ is exhibited? By what is it influenced? 7. What is said of those who have any large organ? What is the duty of those who have a small organ? Why? 8. What are the effects of small Order in children?

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her tippet, her glove, or her bonnet-string, which makes her fretful and impatient, and takes away half the pleasure which the walk would otherwise have afforded.

9. This is not right, children. You *can* be *neat*, you *can* be *orderly;* you *must* be so. It is precisely as easy, when James comes from school, for him to hang his hat, tippet, and mittens, on a particular nail, and for Mary to do the same, as it is for them to come into the house, and to throw everything on the first stool or chair which is near. And, as I have previously told you, the characters of men and women are formed, in a great degree, while they are children; the seeds are, therefore, sown in youth, that spring up and bear fruit in riper years.

10. If you be neat and systematic when you are young, you will be so when you arrive at years of maturity. The neat little girl will make a neat and particular housekeeper; the neat little boy, who takes care of his things while he is young, will take care of what he has when he becomes a man.

11. If we could look over the private drawers of some ladies, we might see a want of arrangement; and if we should look into the offices and studies of some gentlemen, we should find "confusion worse confounded." If you feel that you are at all deficient in this faculty, endeavor to cultivate it, for it is of great importance to you, that you be systematic and orderly.

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8. In what way is careless Mary's pleasure diminished when she wishes to take a walk? 9. What *can* children be? What follows? What should Mary and James do on their return from school? Why should children be careful of their conduct while young? 10. What will the neat little girl become when old? The neat little boy? In what way do ladies show a want of Order? Gentlemen? When should we cultivate this organ?

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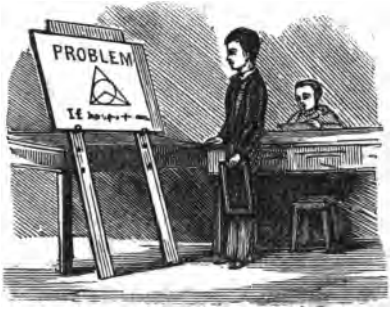
12. We see in all the works of nature, perfect system. "Order is Heaven's first law," and although there are innumerable worlds, and systems of worlds revolving around their own axes, and around the sun as a common centre; yet, all move in their respective places without any confusion or want of order. The same holds true in everything which we see around us.

30. CALCULATION.



Definition—Ability to reckon, count, compute numbers and figures in the head.
Location—Calculation is situated next to Order, and is at the termination of the arch of the eyebrow.

1. One of the first things which a child is taught is to count its fingers. It appears pleased to do this, not as a task, but as an amusement. I have sometimes thought that there must be some magic in this counting over one, two, three, four, etc., by the fingers, for all children like to do it.

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12. What do we see in nature? What is Order said to be? How true is this? To what does it extend? What is the definition of Calculation? What is its location? 1. What is one of the first things that all children learn to do? Why is this a pleasure?

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2. As they become older, however, when they see in their little arithmetics the question, how many apples are two apples and two more added, etc., they think that there is something more difficult than counting. It then appears to many a task, and they dislike it, and the older they become, the more distaste they acquire for this study. Some succeed in the higher branches of arithmetic, as in geometry and algebra, which are called mathematics, when they are unable to count and reckon mentally, or "in the head" as it is called.

3. Such persons do not, frequently, have a large organ of Calculation, but have the reasoning organs well developed, which I shall describe presently.

4. Mary and Jane attended the same school. Mary was very quick in figures, and liked the study of arithmetic. She would go to the black-board, make her figures on it, add and subtract as quickly as her fingers could move. She was very apt, and learned without difficulty. Jane was very anxious to gain a knowledge of her lesson, but scarcely ever knew it perfectly. She said that it was impossible for her to perform her sums, and made very little progress. As day after day passed away, her classmate advanced beyond her, overcoming all difficulties, which made both Jane and her teacher very unhappy.

5. Some may inquire in what the difference between these two girls consisted. If we could see them, we should perceive that the termination of the arch of the eyebrow was not so fully developed in Jane as in Mary;

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2. What is the fact when they become older? In what do some succeed? What do they require beside this organ? 4. Relate the anecdote of Mary and Jane. 5. What was the cause of the difference between them?

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or, in other words, that one had a large organ of Calculation, and the other was deficient in it.

6. There is a *natural difference* in the capacity of different individuals, which cultivation *cannot* overcome; still, *much* depends on cultivation, and a person with deficient Calculation, can improve it a great deal by exercising the organ.

7. If children were taught, when young, to add, subtract, and multiply little sums in their heads by way of amusement, it would become very easy to them; and we should not then see so many clerks in our stores put down on their slates every little article that is purchased, add it, and put down the amount with their pencils, for, they would be able to remember and cast the amount in their heads.

8. Zerah Colburn, when a boy, was very rapid in computing numbers. Eli Stamford is another example; he, also, has a large organ of Calculation. George Combe has the organ small, and he was never able to learn the multiplication table, although he is a very learned and scientific man.

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6. What is there between all individuals? On what does much depend? Explain this. 7. In what way could arithmetic be rendered easy to all? What would be the result of it? 8. What examples are given where this organ was large? What is said of the Calculation of George Combe?

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31. LOCALITY.

DEFINITION—Place; memory of place; location; direction; ability to learn geography.

LOCATION—Locality is situated directly over Size and Weight.

1. I TOLD you in my description of Order that everything must have a place. I will now inform you what I *mean* by *place*. If there were no place or places, this world could not exist in its present form; neither could we; for, if we sit, the something on which we sit must be a place; so, when we are standing.

2. We see a house, and this house is situated somewhere in a place, or else it is not a house; but if it be not a house, it must be timber, bricks, and mortar; but if these fall, or if they stand, they require a place on which they can stand; so we might say of the stars and the planets; therefore we find that everything has a place, if it be not always in that place.

What is the definition of Locality? What is its location? 1. Why must everything have a place? 2. What illustrations are given?

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3. The organ of Locality is designed to teach us to remember the location and situation of places. It also gives us a desire to travel to see different places. This organ assists in the study of geography, when you learn all about different countries, the oceans, seas, rivers, cities, plains, and mountains. It would be useless for you to learn the name if you did not attach some idea to that name; although I have heard many children repeat over a long list of rivers and mountains, and then, perhaps, forget them the next day.

4. When a child, I frequently heard of Boston, New York, and Philadelphia, and have often wondered and wondered where these cities could be. I knew their direction on the atlas, but could not comprehend *where they were* till I had visited them; after which I could never forget them, and suppose that such is the case with most children.

5. Some, with large Locality, will find their way over a large city the first time they go out. They take the right course, as if by instinct; while others, with small Locality, easily lose their way. Savages have large Locality. They can track their way through the pathless forests, and need no guide, compass, or direction.

6. Horses have this organ largely developed, and almost invariably take the right direction, especially when returning to their home, if the distance be ever so great. Dogs have this organ large, and thus can always find their way. I shall speak more of this

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3. What is the design of this organ, and what desire does it give us? In what is it an assistance? What is useless for us to do? 4. What clearer ideas can we gain by means of this organ? 5. What are some enabled to do who have this organ? Illustrate by the savages. 6. What is said of the Locality of the horse? The dog?

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quality in them, when I tell you about the sense of smelling.

7. Birds must have this organ. The sparrow builds her nest in the tree, lays her eggs, rears her young, and when cold winter approaches, she flies away thousands of miles to the warm and sunny climes, where she will spend a few months, and when winter has passed, she flies back to her old nest again, to lay her eggs. She will do this for many years, if she be not disturbed by men or boys.

8. There is a bird called the carrier pigeon, which can be trained so as to carry notes in its bill from one place to another, which is accomplished by the development of this organ.

9. Locality will also aid you in the study of astronomy, which all children should learn as soon as they can understand it. Even young children can understand a great deal about it. When you see Venus in the western sky, so bright and beautiful as she is, can you forget that she is a planet.

10. When you ask what a planet is, and you are told that it is a dark body which revolves or turns around the sun, and then again should ask why it appears so bright if it be a dark body, and again you are told that the bright light of the sun shines on it, and it reflects that light to us, just the same as the dark looking-glass reflects an image, so that we see an image in the glass, though we all know that our persons are not in the glass—when you hear these things, will you forget them? Can you not understand them?

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7. What is said of the Locality of birds? 8. The carrier pigeon? 9. In what will Locality be of aid? How much of astronomy can children easily understand? 9, 10. Give the illustration?

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11. You often comprehend more that your friends tell you than they imagine. I cannot explain to you more about these stars and planets at the present time. Locality will also aid you in the studies of Phrenology and Physiology. When I inform you that the brain is in the skull, that the heart is near the left side, and the situation of the different parts of the body, and the faculties of the mind, you will remember them. This organ is cultivated best by travelling, and seeing different countries.

12. This organ is represented in the cut, by a traveller looking at the guide-board, to ascertain if he had taken the right road.

32. EVENTUALITY.

DEFINITION—Fondness for events, stories; desire for information; love of experiments; general memory of facts and particulars.

LOCATION—Eventuality is situated immediately above Individuality.

1. "A STORY, a story, please to tell me a story," cries almost every child, as soon as it can understand what

11. What do children comprehend? What other studies require the aid of Locality? Explain. 12. How is this organ represented in the cut? What is the definition of Eventuality? What is its location? 1. With what are all children pleased?

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language means; and the same story affords amusement, if related several times in succession. I well remember a story about a little bird, which built its nest in the green leafy bough—which I have related again and again to a bright-eyed little nephew, about three years of age, and the little creature's eyes sparkled as I explained to him the manner in which the large bird taught the little ones how to fly.

2. Children learn a great many things by means of this organ, which they would not gain from any other source, for they do not like to read and confine their attention to anything for a long time, especially if it appears dull and prosy. They listen eagerly to what affords them amusement, and are much more likely to remember it.

3. If a child were told the history of Joseph and his brethren, or of Moses, or Daniel, or other good men, whose good deeds are related in the Bible, his mind would become interested at once, and he would eagerly drink in the truth, and wish to have more.

4. There are many tribes of Indians who have no written books, no written history; but the old men, the fathers and patriarchs of the tribe, are accustomed to gather their children and grandchildren around them, and relate all the deeds and achievements of their forefathers, from their earliest history to the present time. They tell them of their wars and battles, their marches, their conquests, and their victories; and these, in their turn, relate the same deeds to their children, and in this way their history is perpetuated from father to son,

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1. What amused a little boy? Why are stories useful? 2, 3. Illustrate this. 4. What is very common among the Indians?

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through every generation. This history is considered by them as something sacred and holy, strictly correct, and is regarded with as much veracity as our Bible. These Indians have large Eventuality.

5. Those who have this organ, generally like to read the histories of different nations, and remember all about the different kings and queens, the rise and fall of empires, the wars and battles in which nations have engaged.

6. Children, however, may hear a great many stories and anecdotes, may gain a vast amount of knowledge, and may acquire much valuable information; and yet all this may be useless to them.

7. Suppose a farmer had a store-house in which he was constantly putting grain, which, as fast as he put it in, leaked out through little holes in the floor. How much do you think he would accumulate? Would not his labor be useless?

8. It is precisely so with our minds. The organ of Eventuality is the store-house of the mind. In this we gather all our facts, stories, and events; but, if this has not been cultivated with care and attention, all these ideas will leak out of it as the wheat in the barn or granary. Notice different individuals, and you will perceive that some have a little hole in the middle of their foreheads. It is this little hole through which their ideas are fast leaking out.

9. Said an old physician to one who had just completed his studies, "I have *forgotten* more than you

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4. How are these regarded by them? 5. What desires does this organ give? 6. What may be useless to children? 7. Illustrate this by the farmer. 8. How will this compare with our minds? What will be seen from observation? 9. Remarks of a physician.

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now *know*." This little hole in his forehead would have told the secret, if he had not disclosed it himself.

10. How frequently do we hear the remark, "I know, but cannot recall or recollect the idea." This saying is so common that we hear it many times during the day. This is not right. Every one who has a poor memory should not blame any one but himself, or herself; for, when children, their memory was excellent. It only shows that they have not taken proper care of the faculty.

11. Children, remember *something* every day; make it a point of *duty*, as much as to eat your regular meals. The Pythagoreans were accustomed, every night, to review their actions during the day three times, to see what they had learned.

12. Titus, who was an excellent Roman king, used to look over his thoughts and deeds every night; and if he had not done some good thing, he exclaimed, "I have lost a day."

13. Time is too precious to be lost, and we should not only endeavor to *learn* something new every day, but *remember* it when learned. Many scholars, after their school-days have passed, lay aside their books, and appear to feel relieved from the task—as they say—either of learning or remembering anything more. But I wish to impress on your minds, that

> "'Tis greatly wise to talk with our past hours,
> And ask them what report they bore to heaven."

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9. What would have said the same? 10. What is a very common remark? Why is this not right? What does it show? 11. What should children do? What did the Pythagoreans do? 12. What was a custom of Titus? 13. What should we all endeavor to do, and why? What should be impressed on the mind? 14. What was the design of our creation.

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14. If we do this, we shall be both happier and wiser, and answer better the end of our existence. We were not created, with minds, to waste away all our energies on our bodies; but we should improve and bring out every faculty to its greatest extent.

15. This organ is represented in the cut, by a temple of learning in the distance, and the goddess of history is inscribing on her scroll the events and deeds of all nations.

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33. TIME.

DEFINITION—Memory of dates; of the lapse and duration of time.
LOCATION—Time is situated next to Locality, immediately above Color.

1. WHAT is meant by time? We are conscious of something which we call hours, days, and weeks. We know that these days, weeks, and months are passing away, and then we ask, *where* is time? Again, we look forward, especially if we have lively hopes and antici-

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15. Explain the cut. What is the definition of Time? What is its location? 1. What questions do we ask in reference to time, and why?

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pations, to months and years to come, and then we ask, *when* will time be?

2. So we perceive that our existence is divided into time past, present, and future; and all those persons who have that part of the head over the organ of Color large, where the organ of Time is located, will be able to remember these different successions of events.

3. They can look back through their lives, and recall different acts at particular seasons, they will be able to recollect dates in history, and will have a good knowledge of periods of time, as it passes. If we should train this organ as much as it is susceptible of being trained, we should not need time-pieces to tell us the hour of the day, but would know ourselves nearly as well *without* their assistance, as *with* them. If Sarah had a large organ of Time, or if she had exercised it properly, when her mother gave her permission to spend half an hour with her playmate, she would have known precisely when she was to return home.

4. Some can tell what time it is in the night, at any hour, whenever they wake; they can also tell the hour correctly in the daytime. A difference in the development of this organ is the reason why some are never punctual in keeping engagements, while others are always on the spot at the appointed hour. It is said that when Howard made an engagement with any one, he never broke it.

5. It is very annoying to a teacher, lecturer, or min ister to have his pupils, or his audience, come in one by

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2. How is time divided? 2, 3. What are the effects and advantages of the organ of Time? 4. What can some tell in the night? Why do some break engagements, while others always keep them? In what way is the teacher, lecturer, or minister annoyed?

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one, instead of being present at the appointed hour. How much is lost by a little delay, by getting a little behind the hour!

6. A gentleman, who was deficient in the organ of Time, once intended to go to the city, to meet some friends, who were soon to leave for Europe. When he reached the wharf he discovered that he was several minutes too late for the steamboat. He thought that he could go just as well by the next boat, on the morrow, and, by much exertion, he succeeded in being in season for it; but, when he arrived at the city, he found that his friends had left for Europe, several hours before his arrival, and that if he had reached the city by the previous boat, he would have had the pleasure of seeing them.

7. He was much disappointed, but it was a good lesson for him, which he did not soon forget. You see that this is an important organ, and that there are advantages and disadvantages arising from the existence or deficiency of it. Choose the good and leave the evil.

8. This organ is represented in the cut, by an old man with a scythe, and with wings, to warn us of the flight of time, that it rapidly passes away. As the sand oozes through the hour-glass, so do the sands of life ebb to their termination.

6, 7. Relate the case of the gentleman who had deficient Time. 8. Explain the cut.

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34. TUNE.

DEFINITION—Perception of music and sweet sounds; ability to learn tunes easily.
LOCATION—Tune is situated above the organ of Locality.

1. WHO has not been delighted in "the merry, merry month of May," to be awakened from the slumbers of the night, by the sweet warblers of the wood.

> 'Birds are free,
> So are we,
> And we sing as happily."

2. The bird greets with his cheerful song, as if to woo us forth from our homes, to enjoy the beauties of nature. I have thought that birds had a delightful home in the green leafy bough, and have felt that they appreciated their privilege, and poured forth the joyousness of their souls in song. They appear to be happy all the day long; they have an abundance of pure air to breathe, and they can procure sufficient food for their young.

What is the definition of Tune? What is its location? 1. What is a source of delight to us? 2. What can you say about birds? Why do they sing? Why do they appear happy?

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3. It is a pleasant sight to watch them as they build their little nests, and bring bits of straw, mud, and wool to make a soft pillow for their dear little young. I have often wished, when a very little child, that I was a bird, that I might roam all over the beautiful countries of the earth, and that "I had the wings of a dove, that I might fly away and be at rest."

4. I think the bird must be a happy creature, and I cannot imagine how any one can be so cruel as to rob a nest of its little eggs, or steal the young and tender birds, and thus cause that wailing note of the mother, instead of the song of gladness. I must tell you a story about the love and tenderness of the parent bird for its young. There was once a bird that built its nest in a tree, where she watched over her young birds.

5. She observed a serpent creeping along on the ground to the tree. She began to cry loudly, and flew away, but came back very quickly, bringing in her mouth some ivy leaves, which she placed around the nest; she went backward and forward, till she had filled the nest with these leaves.

6. The snake made its way up the tree, but as it reached the nest, and put in its head, it immediately fell back to the ground, and soon expired. How the bird knew that this kind of leaf would poison this deadly animal, or discovered where to obtain them, is a mystery; but such was the case. A *mother* could not have done more for her *children* than this *bird* did for *her* young. Children, *never* be cruel to birds! Remember

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3. What is a pleasant sight? What is the bird enabled to do? 4. What is a very cruel thing? What has the mother-bird for its young? 5, 6. Relate the anecdote of the bird and the snake. What should children remember?

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they are innocent, happy songsters, and that we ought not to destroy any of the melody which there is in nature.

7. Bees have their song, as "busily they build their cells, and neatly spread their wax." They have a language, which is their music. I have thought that I would like to be a little bee, that I might repose in the bosom of some fragrant flower; I would nestle in the embrace of the modest violet, as my home, and would "gather honey all the day from every opening flower."

8. We should imagine that the bee had the sweetest disposition of all creatures; for Flora's garden is open for their rambling. There are no bars to impede their approach, but they can roam hither and thither as they please. It has seemed to me that they possessed an ungrateful spirit, to inflict so much misery by their sting; but I suppose that they are often disturbed and troubled by boys and men.

9. If God had not intended that we should sing, he would not have given us the taste for music, neither the power to execute it.

10. There is a muscle of the face, that passes immediately over the organ of Tune, so that we cannot always decide as to the actual size of the organ. Beside, some persons are extremely *fond* of singing, who cannot sing themselves. Their lungs are not sufficiently strong to give compass of voice, and they may have a

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7. What is said of bees and their music? What is the little bee enabled to do? 8. Why should we think that the bee ought to have a sweet disposition? What do boys often do? 9. What is a conclusive reason why bees should sing? 10. Why is it difficult to ascertain the size of the organ?

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deficient organ of Time, so that they cannot measure the length of sound; or their organ of Order may be small, so they will not have much system or method. All these qualifications or organs are requisite to enable persons to sing correctly.

11. Tune is influenced by other organs. If Ideality be active, the songs will be elevated and refined. If Combativeness and Destructiveness be strong, the songs will partake of a warlike and martial spirit. If Veneration be large, the person will sing psalms and hymns. The reason why Charles whistles, and John plays on the drum, Henry on the violin, and Robert on the flute, and Mary sings sweet songs and performs on the piano, —as in the cut—is, because they all have the organ of Tune; but it is influenced by their different faculties, which predominate over others.

12. All children can learn to sing, if they commence in season. I do not say that all will have the sweet, musical voice of the nightingale; for some have, naturally, sweet, mild, and soft voices, when they talk, while others speak in loud, strong, and masculine tones. The same is true, in regard to singing. But every one can sing in some degree, and thus breathe forth the feelings of the heart in song.

13. In Germany, every child is taught to use its voice, while young. In their schools, all join in singing, as a regular exercise, as much as they attend to the study of geography; and, in their churches, the singing is not confined to a choir, who sit apart from the others,

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10. What qualities are requisite for correct singing? 11. By what is Tune influenced? Give the illustration. 12. What can all do? What difference is there in the voices of different persons? 13. What is the case in Germany, in their schools and churches?

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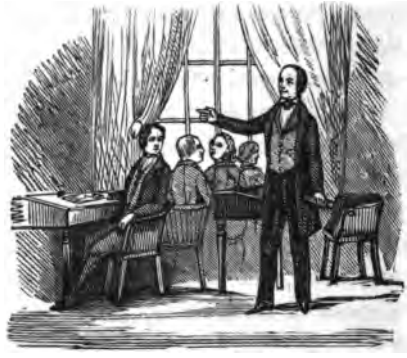
perhaps in one corner of the house, but there is a vast tide of incense, going forth to God from every heart, which can give utterance to this language of the soul.

14. Children, sing! yes, sing with your whole hearts! David sang before the Lord, and it is meet that you should do the same; and, always, when angry feelings rise in your breasts, curb and check them by singing sweet and cheerful songs.

35. LANGUAGE.



DEFINITION—Ability to talk; to communicate ideas; to use words and appropriate language.

LOCATION—Language is located in the plate of the eye; when it is large, it presses the eye downward, and swells out the under eyelid.

1. I HAVE told you of the wonderfully imitative power of the monkey and baboon tribe, of the delightful singing of the nightingale, and other warblers of the groves; but man, who is "lord of the creation," can do all that

14. What did David do? When should children particularly sing? What is the definition of Language? What is its location? 1. What is said of the powers of animals and man?

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these animals can, and more beside; for he has powers of speech, by which he can communicate all his ideas, and interest, amuse, and instruct his friends.

2. What we mean by voice, is that sound produced in the windpipe by the air in its passage to and from the lungs, uttered by the lips, teeth, tongue, etc. There are two kinds of voice—the natural and the acquired. The natural voice consists of those sounds which are made without articulation; thus the cries which infants make as soon as they are born; the manner in which animals convey ideas to each other—as the horse appears to communicate ideas to another which is constantly with him.

3. The hen gathers her chickens under her wings, when danger approaches, by her clucking, which is perfectly intelligible to her brood. The birds call their little ones together, and the wild beasts of the forests make the country resound with their roar. The dog has a natural language; when his master is in distress, he conveys that idea by barking and howling, and does not cease till some person follows him to ascertain the cause.

4. The acquired or artificial voice results from imitation; by which means the child is enabled to speak words, and learn every variety of words and languages. If the sense of hearing be deficient, or if the child have no intellect, he can never learn to converse. Those who are born deaf, can never learn to speak, and are consequently mute, or dumb. Some, who have

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2. What is voice? What is meant by natural voice? 3. Give examples of the natural voice. 4. What is acquired voice? Give an example. What are necessary beside Imitation? What results from a want of hearing?

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been able both to hear and to speak for many years, lose their hearing entirely, and, gradually, their faculty of speech. Idiots can never talk very well, because they have no intellect.

5. Infants who cannot speak, have the organs of voice, formed as perfectly as when they are older. Many believe that the orang-outang has the powers of speech as perfect as we, but having no intellect to guide them, is therefore unable to *use* these powers. These animals have been known to laugh, but never to talk.

6. As soon as children understand the meaning of words, they use them. The more *ideas* they have, the more *expressions* they use. The reason why some children *speak* more correctly than others, is, that they *hear* more correct language at home. Most children are great talkers. They are continually saying *something*, whether it has any meaning or not; and you will generally find, by observation, that in these cases their eyes swell out, as it were, from their heads.

7. The only way to improve the organ of language, to be free and copious in expressing ideas, is *to converse.* The more persons talk, the more they can say; and the easier it is for them to express themselves. This is a far better, much more successful way, than to study the French, Spanish, and Italian languages; for, in a majority of instances, persons learn only to *read* those languages, to translate them into English, without talking or conversing in them.

8. There may be *other* advantages in studying these

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5. How do we know that intellect is necessary for voice? 6. How soon do children talk? Why do some speak more correctly than others? What children have large swelled eyes? 7. How can this organ be improved? Why is this a better way than to study languages?

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languages, but it does not improve our powers of speech. Every one acknowledges that woman has the power of language, but even *she* will lose this power if she does not use it. This faculty was given to us by our Maker as the means of communicating our ideas, of promoting social intercourse, and imparting instruction, sympathy, and affection.

9. Notice, yourselves, the eyes of all your school-mates, and see if there be not a great difference in their fulness. Some appear as if almost sunk into the head, while others stand out as on a prominence.

10. This organ is represented in the cut, by a gentleman who appears to be delivering an eloquent address to his friends.

11. We have finished the description of the Perceptive or Observing Faculties, and, on reviewing their location, we see how beautifully they are arranged. First, we must *look* at objects, before we can gain *any* ideas, and we have for this purpose the organ of Individuality; then, close by its side is Form, to give us an idea of the different shapes of bodies. Close by Form, is Size, that we may have a more distinct idea of separate objects, as compared with others of the same form. When we know the size of an object we can judge of its weight, for they have a marked relation to each other; therefore Weight comes next in the rank.

12. Then we have Color, to enable us to distinguish a light from a dark body, to make us pleased with the varied hues and tints of nature; we have Order to

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8. Why is it necessary to use this organ? What was its design? 9. What difference is there in different persons? 10. Explain the cut. 11, 12, 13. Explain the general location of the perceptive faculties and their adaptation.

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assist us in arranging all our thoughts, ideas, and plans, with system and method; Eventuality to enable us to store up the ideas we gain, and to recall them again.

13. Then Locality points out the different situations of places; Time and Tune enable us to appreciate the melody of song; and, lastly, Language, to give utterance to all the different emotions of the mind, and to express our feelings of love, kindness, affection, and sympathy.

14. It has been said by some, that those persons whose foreheads retreat, are often the *smartest* scholars. It is true, that, when the Perceptive Faculties predominate, they give fulness over the eyes, and to the *lower* part of the forehead, and enable the person to learn readily, to repeat what he or she has learned; but those are not generally *deep*, *sound*, and *original* scholars, without they possess the faculties described in the next chapter, which give fulness to the upper part of the forehead.

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14. What talent do those possess who have these faculties? What do they not have?

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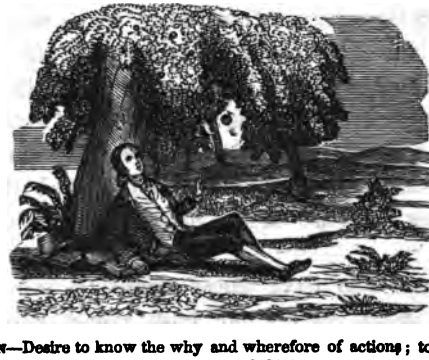
CHAPTER VIII.

REFLECTIVE, OR REASONING INTELLECT.

We have now come to the reasoning intellect, which gives to man the power to think, reason, invent, compare, and draw inferences. It is this, that places man supremely above the brute creation, that furnishes him a guide for his conscience in striking out paths of duty, and enables him to follow her dictates. An *idiot* may be conscientious, kind, and benevolent; yet if he have no reason, he cannot discriminate in his actions. The first of the reasoning organs is

36. CAUSALITY.



Definition—Desire to know the why and wherefore of actions; to trace out the causes of everything; ability to plan, judge, and think.
Location—Causality is situated on each side of Comparison, in the forehead.

1. The organ of Causality is represented, in the cut, by a man who is watching the fall of an apple. You

What are the functions of the reasoning faculties? What assistance is reason to man, and why? What is the definition of Causality? What its location? 1. Explain the cut.

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will, no doubt, wish to know what it means, and how this can apply to the organ of Causality.

2. This organ disposes a person to think, reflect, and meditate; to inquire into causes, and to have a desire to examine principles, and understand their application. Such persons are not contented to use their Individuality, in noticing things which occur about them, but they are anxious to know *why* such a *cause* produced a certain *effect*.

3. Sir Isaac Newton had a large organ of Causality, and a very inquiring mind. As he was sitting in his garden one day, he saw an apple fall from a tree to the ground. He began to think and inquire *why* it should fall. He then thought that every body which was thrown into the air would also fall to the earth; and hence he discovered that every body is drawn or attracted to the centre of the earth by something which is called the attraction of gravitation. He also made many other discoveries. Every one thought that light had *one* color only; but he separated and divided it into *seven* beautiful tints. This resulted from *thinking*. So many of the books which are written, and all the new discoveries that are made, arise from close and hard thought.

4. Many who have large Causality, can plan and originate ideas. They can look ahead, and lay deep schemes. Children generally have this organ large; hence the multitude of questions which they ask. Why is this? what is the reason? and a thousand other

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1. What questions will perhaps arise? 2. What does Causality dispose a person to do? 3. In what way did Newton discover the attraction of gravitation? What other discovery did he make? What has resulted from thinking? 4. What does this organ enable men to do? Children?

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queries are continually suggesting themselves to their minds. This is an excellent way to obtain information, if you will ask proper questions, but try to find out the answers yourselves.

5. When you see the bright light, think *why* it is that the wick gives such a bright flame, when the oil is some distance from it. Every one thinks that the fountain in the Park presents a beautiful appearance, when the jets of water rise sixty or seventy feet in the air. Did you ever ask *why* it rises thus to so great a height.

6. There is a *cause* for everything that takes place around us. Study to find out that cause. Who of you ever thought why we can obtain water by raising the handle of the pump, when the water itself is at the bottom of the well? Who ever thought why the pitcher is broken, if water freezes hard in it?

7. Two little boys were standing by a pond, and, as is frequently the case, amused themselves by throwing stones, bits of wood, and twigs of trees, into it. Said John to his brother Charles, "I wonder why the stones sink into the water, when the pieces of wood float on the surface?" "I do not know," answered his brother, "I never thought about it." "Well," replied John, "I should really like to know, and I intend to ask father all about it, when we return home."

8. As these little boys were proceeding on their way home, they perceived a kite, sailing high in the air. "Well," said John, who had large Causality, "I should be very much gratified if some one would tell me *why*

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4. What should they try to do? 5. Of what should they think when they see a light? Fountain in the Park? 6. What thing has a cause? Of what should you think when you see water frozen, etc.? 7, 8. Relate the anecdote of John and Charles.

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that kite continues to ascend higher and higher in the air, when if I should throw my pocket-handkerchief into the air, that would fall to the ground? He put *this* question also in his store-house, to ask his father, who encouraged his children to ask questions, and had much patience in answering and explaining their inquiries. If little John should go on in this way, when he becomes a man he will have gained a great deal of information.

9. As I said, everything has a cause; and if we know a cause, we can tell the effect of that cause. Think, inquire, and be not satisfied with simple *facts*, but search for the *principle*, and endeavor to *understand* it.

37. COMPARISON.

DEFINITION—Ability to compare, discriminate, illustrate, explain; to trace resemblances, and to draw inferences.

LOCATION—Comparison is located above Eventuality, in the middle of the forehead, and between the two organs of Causality.

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8. Where did John put his question? Why? What will John be when he becomes a man? 9. What is a general truth? What should all do? What is the definition of Comparison? What is its location?

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1. The organ of Individuality looks, notices, and observes objects and things; Form, gains ideas of their shape and outline; Eventuality, treasures them in the great store-house of the mind; yet we should be quite ignorant, and be unable to apply and make use of our knowledge, unless we had Causality to find out the cause, and Comparison to compare one thing with another, and to show us the effect of the cause.

2. There is order in all the works of our Creator; there is a similarity, resemblance, and connection, between all his creatures; there is also a vast chain, extending from the lowest creature in God's creation to man, who is the highest; thence to angels, archangels, and reaching over the throne of God. Each being is a link in that chain, and has some quality in common with the one above and below it—some relation and some dependence—has its destined period of existence—its end to accomplish. Blot out one of these species, however useless and even malicious it may appear to us, and the order and system are broken—all the others are affected by it.

3. From the rude and savage barbarian, who lives with no elevated aims and ambition, to the individual surrounded and influenced by the polish and refinement of civilized life, there is a wide difference; yet each is a human being, fashioned in the image of his Maker, endowed with intellect and reason, and of the same great genus, man. There is also a great difference between animals of the same class; yet there is a suffi-

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1. Why do we need other organs beside Individuality, Form, and Eventuality? 2. What order and connection is there between all creatures? 3. Is there anything useless? Compare man and the barbarian. What is true of them both?

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cient resemblance to enable us to arrange and classify them.

4. That every animal, bird, and insect, is of some importance, will appear evident from the following fact.

A law was once passed, in the State of Vermont, that all the crows should be destroyed. So the people associated themselves, and devised every possible means to exterminate this species of birds. Causality asks, what have the crows done, to incur the ill-will of the people? Individuality has had its eyes wide open, and has seen that crows love corn, and that they waste and devour all they can. Comparison here puts in a word, and says, Let me draw this conclusion: If crows eat corn, and we kill the crows, the corn will be saved. So there was a constant firing of the guns, till all the crows were either killed or frightened out of that section of the country.

5. But the sequel proved that this reasoning was too much in haste; for the farmers, who had anticipated a plentiful harvest, soon found that their fine waving corn was filled with a small, green worm, which was doing more injury than all that the crows had previously done.

6. What was now the best course to be pursued? I wish your advice and assistance, Comparison, said the farmers. Thinking more about the subject, she replied, the crow feeds on these worms; they were created expressly for her benefit; therefore spare the lives of the crows; and though they are maliciously disposed, yet they will devour these worms, and you will be able to save more corn. Other facts might be mentioned, but this is sufficient to illustrate the principle.

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4. What is said of every bird, insect, etc? In what way is this illustrated? 5. What did the sequel prove? Why? 6. What did Comparison say next?

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You can use your Comparison, children, and trace out other facts; as, for instance, why so many small fish were created, and what would become of the larger species if they were destroyed, etc.

7. The organ of Comparison is very useful to us. Experience teaches that fire burns; therefore we avoid *every* fire that we see, because all resemble each other. We have often heard that great and universal law, which you must all remember, viz., that heat expands, and cold condenses; also another, that two bodies cannot occupy the same space at the same time. We will take these laws, and from them draw some general truths.

8. Individuality saw the water boil over the sides of the kettle; Causality says, let me find out the cause or reason for this. She reads that the particles of water, when heated, expand and rise; as there is not room for them, they must, therefore, run over the sides of the kettle. Some liquids expand more than others; hence, they are more liable to "boil over." As fast as the particles of water at the bottom of the vessel become heated, they rise to the surface, and the colder ones take their place; this is the reason that the water is in such constant motion during the process.

9. Causality says, that if a ray of light be reflected through a drop of water, it will be divided into its seven colors; so, whenever we see the sun shine immediately after we have had rain, or during a shower, we most certainly expect to see the rainbow in that

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6. Of what advantage might Comparison be to children? 7. What does experience teach? What are two great laws? 8. Explain the boiling of water? Why is the water in motion? 9. Explain what produces the rainbow.

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part of the sky opposite to that in which the sun is situated.

10. When a small tube is placed in water, the sides attract the water, and it rises in the tube. Comparison says that the wick of a lamp is composed of many small tubes; therefore, if it be placed in a lamp of oil, they will draw it up several inches above the surface of the oil; and, as oil will burn, we always know that if we light the wick in a lamp, we shall have a bright flame. For the same reason, if a piece of sugar, salt, or sponge, be placed so that only a part of it touches the water, the whole mass will become wet. And we also know that we must never leave one end of the towel in the basin of water, unless we wish the greater part of it to become wet; for each thread acts as a small tube, to attract the water.

11. Again; all bodies that are lighter than water, float; those that are heavier, sink; therefore we conclude that it is perfectly safe to sail in deep water, on steamboats, because they are lighter than the surface of the water in which they sail. Hence, bits of wood and straw rise to the surface of the water, while stones, which are heavier, sink to the bottom.

12. Anything that is lighter than air, rises above it; hence, men have constructed balloons, and filled them with a very light gas, and have risen in them far above the atmosphere, or many miles from the surface of the earth. Several years since, three men started from London, and travelled many hundred miles to Ger-

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10. Explain why the wick burns in the lamp? How does this principle apply to sugar, salt, sponge, towel? Why? 11. What is another great law? What follows from this? 12. What is another law? What is the result? What experiment was made several years since?

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many, in a balloon; and they felt perfectly safe and easy in making this experiment, and attempting this expedition, because their Causality was satisfied that they had a correct principle in constructing their conveyance, and their Comparison told them that if the *cause* or *reason* was a good one, the *result* would certainly follow.

13. When rooms have ventilators, or places to permit the heated air to escape, they are generally made in the ceiling, or upper part of the room; because, as soon as the air becomes heated, it expands, is lighter, and, of course, rises to the upper part.

14. If a candle should be placed at the upper part of an open door, the flame would blow outward, because the heated air which has risen, rushes out; but if it should be placed at the bottom, the flame would be blown into the room, because the cold air from the next room rushes into the lower part of the room, to supply the want of that which has risen. This motion of the air is wind; and, it is for this reason, that if we should sit in a room with the door open, our feet would feel the current of air sooner than any other part of our bodies.

15. If one end of a straw be put into a barrel of cider or molasses, and the other be sucked by the mouth, the cider will rise through the straw. Causality asks why this will take place; the reason is, that we draw the air from the straw, and the liquid in the barrel rises, to supply or take the place of the air. A pump is constructed on the same principle. Comparison says that

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12. Why did they feel safe? 13. Where are ventilators situated, and why? 14. What interesting experiments can be made with a candle? 15. With a straw? What is the reason.

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if the liquid will rise through a small straw, water will rise through the tube of the pump. The air is drawn out of the log or barrel of the pump, and the water is then drawn up into the tube, and cannot escape, on account of a small valve at the bottom of the tube, and is then pumped out.

16. John, of whom I spoke in the last section, would not be surprised to see the second or third kite rise in the air, because the first rose, and his Comparison tells him that the second was similar to the first. Neither would he be surprised to see the second stone sink in the water.

17 When it becomes dark, we light a lamp. Why? Simply because we have seen the darkness dispelled by that means. When it is cold, we sit by a fire; it would be folly for us to stand by an open window, on a cold winter's day, instead of drawing around the fireside.

18. That "experience is the best teacher," is an old, but very true adage, and it is from this organ of Comparison that we gain experience, because we learn to judge of the qualities and materials of different things by those already known to us.

19. Children are obliged to acquire this experience gradually; and it is quite necessary for them to rely on the word and advice of persons older than themselves. This they are sometimes unwilling to do, and so suffer the consequences. Said a mother to her little girl, one

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15. In what way does Comparison reason in regard to the pump? Explain the principle? 16. What would not surprise John? 17. Why do we light a lamp when it is dark? Or sit by a fire when it is cold? 18. What is an old and true adage? How do we learn experience? Why? 19. What is necessary for children to do? 19, 20. Relate the case of the little girl who was unwilling to take the advice of her mother?

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day, "You will burn you, if you touch the stove;" but the stove appeared dark, and the little girl had always seen the fire appear red, and had associated the idea of burning with this color, and she therefore thought her mother had made a mistake.

20. She continued to play around it, while her mother was busily engaged in another part of the room, and very soon put her hand on the stove, and was burnt. This little girl's Comparison would say, henceforth, do not touch the black stove again. She has experience, now, for her guide; but we are very frequently compelled to take the experience of others, if we wish to avoid injuries and dangers, and be successful in our enterprises.

21. We draw comparisons every day, which affect our whole lives and conduct, and form the basis of all our actions. This would be a very interesting subject to pursue farther, but I have told you sufficiently to enable you to notice everything that is passing around you.

22. You must study out the causes of everything you can, remembering that there is no effect without a cause that is sufficient to produce that effect; for if you perform an act, it is because you have a portion of brain that impels you to do it, and this certain portion of brain enlarges and diminishes in proportion as it is exercised, following the general law of nature, that the strength of anything is increased by use, and weakened by disuse.

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20. What experience did she gain? What are we often compelled to do? 21. What do we do every day? 22. What should you study and remember? What causes every act? What is a general law of nature?

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There are two other faculties that have been recently discovered, which are called Human Nature and Suavity.

C. HUMAN NATURE.

DEFINITION—Discernment of human character, and the motives of strangers at first sight.

LOCATION—Human Nature is located in the top of the forehead, between Benevolence and Comparison.

1. THE design or object of this organ is to examine the motives of action, to trace out the secret purposes of persons in all which they do, and to read and understand the character of those whom you meet. It is a fact, that most, if not all, the feelings and emotions of the mind, play on, or are exhibited in the countenance, unless the conscience be seared and hardened.

2. If a person be convicted of a crime, we almost always form an opinion of his innocence or guilt by looking at him, as if we were conscious that there was something that would leave traces on the expression,

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What two faculties have been discovered recently? What is the definition of Human Nature? What is its location? 1. What is the object of this organ? What is a fact? 2. What is often the case when we see a person who is convicted for crime?

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although we often judge incorrectly, and are deceived. Those who have this organ largely developed, generally form correct impressions of individuals, when they first see them, and are rarely deceived in their opinions respecting them. Policemen generally have large Human Nature, and they are very skilful in finding rogues, and are rarely deceived in their impressions of individuals.

3. This organ, as well as the next, is difficult to *be represented* by *appropriate* cuts; but perhaps they will give you some idea of their action. The cut for Human Nature shows a man finding out the character of another by his Phrenology. This organ assists in tracing out the character, but it generally draws its conclusions from the appearance of the face, rather than the head.

D. SUAVITY, OR AGREEABLENESS.

DEFINITION—The power of pleasing, of adapting one's self, and being agreable in any company, or change of circumstances.

LOCATION—Suavity is situated on each side of the organ of Human Nature.

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2. What can persons do if this organ be large? How does it assist police men? 3. Explain the cut. What is the definition of Suavity? What is its location?

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1. THIS organ gives a smooth, pleasing, and pliable manner. Some persons who have this organ small, have such a repulsive air and manner, that none seek their society, regard them with affection, or are pleased with what they say. Those who have it large, can say and do what they please, and obtain all the favors they wish, and are always welcomed wherever they go. Men and women who have this organ large, can always adapt themselves to the capacity of the young; they know how to enter into their feelings, engage in their sports and amusements, interest, entertain, and instruct them.

2. The physician needs this organ, to enliven the sick room with his anecdotes, and pleasant conversation, and to make bitter medicines palatable. The teacher needs this organ, that he may sympathize with his scholars, and remember that he has been a pupil himself. The parent needs it, to render home cheerful, happy, and a desirable spot for the children. Children need it, to adapt themselves to those who are younger, to amuse the little infant, and to play with their younger brothers and sisters. This is certainly a most desirable organ, as it contributes not only to our own happiness, but to that of those around us.

3. I have described, children, in a short, plain, familiar, and practical manner, the location, definition, and application of all the organs of the brain; and, as far as possible, illustrated their use by familiar stories and examples, in order that you may be the better able to

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1. What is the effect of this organ? What are its advantages when large? 2. Why does the physician need it? The parent? Children? Why is this a desirable organ? 3. What has been described in the second volume of this book? What was the design of all this?

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understand them. I have done this with a desire not only to *amuse*, but also to *instruct* you; to teach you some of the simple laws of your bodies and minds; to induce you to *think*. I have also endeavored to elevate your thoughts, to lead you to see, that although it is necessary both to eat, and to supply the wants of the body, yet by so doing, you only fulfil a part of the design of your creation. I have likewise endeavored to show you that you have mental faculties, which must be supplied with mental food; the weaker exercised, that they may increase, and those that are excessive restrained, that they may diminish, so as to secure a well-balanced brain and mind.

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3. What endeavors have been made to improve children?

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CHAPTER IX.

LOCATION OF THE ORGANS, OR GEOGRAPHY OF THE BRAIN.

1. In studying geography, you have an atlas or map, on which all the countries, states, towns, mountains, rivers, etc., are placed in their regular situations. To find any of them, you have only to refer to your atlas, and you are sure of success. I have told you the location of each one of the organs in the brain separately. I now wish you to consider the whole brain together, as a large mass—not of the world, but of all the powers and faculties of the human mind—or, of what has been quaintly called—"man's little world."

2. When you wish to recollect the situation of a particular state, your mind not only reverts to the particular situation of that state alone, but also recalls all the states around it. When you think of Italy, you almost insensibly *bound* Italy, or think of all the states around it. I intend to teach you to *bound* each one of the *organs*, so that you may recollect not only the situation of *one*, but of *all* the *group* to which it belongs; for, if you learn their location separately, you will be too much

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What is the subject of chapter ninth? 1. How do children study geography? How is the whole brain to be considered? 2. In what way is a particular state remembered? Give an illustration. What will children now be taught? Why?

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inclined to *think* of them separately, and, as I told you in my description of Comparison, we must classify and arrange *all* our ideas on *every* subject. Give me your attention, and you will find this geography of the brain to be a highly interesting subject.

2. By North, I mean above, upward, toward the top of the head, commencing at Amativeness, and also at the nose, with the exception of the three organs on the top of the head; by South, I mean below, toward the neck, ears, and nose; by East and West I mean the sides, which will frequently be the same, because most of the organs are double. As you learn the boundaries of each organ, try to find it on the head of some of your friends. You will please refer to your atlas of the brain, or the Symbolical Head—the frontispiece of this volume—and also to the bust marked by Fowlers & Wells, which represents one half of the head—the other half has the same organs; those on the top of the head extend in an equal space on the other side. You have probably learned, by the representations, the names of the organs, and, as each one is numbered, you will probably find no difficulty in placing them, or learning their situations.

No. 1. Amativeness is bounded north by Philoprogenitiveness, south by the back of the neck, northeast and northwest by Union for Life and Combativeness.

No. 2. Philoprogenitiveness is bounded north by Inhabitiveness, south by Amativeness, east and west by Union for Life and Adhesiveness.

No. 3. Adhesiveness is bounded north by Concen-

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2. What should we do with *all* our ideas? What will North mean? South? East and West? To what must children refer? Give the name and boundary of organ No. 1. No. 2. No. 3.

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trativeness, south by Union for Life, east by Inhabitiveness and Philoprogenitiveness, and west by Combativeness.

No. 4. Inhabitiveness is bounded north by Concentrativeness, south by Philoprogenitiveness, east and west by Adhesiveness.

A. Union for Life is bounded north by Adhesiveness, south by Amativeness, east by Philoprogenitiveness, and west by Combativeness.

No. 5. Concentrativeness is bounded north by Self-Esteem, south by Inhabitiveness and Adhesiveness, east and west by Approbativeness and Adhesiveness.

No. 6. Combativeness is bounded north by Cautiousness, south by Amativeness, east by Adhesiveness and Union for Life, and west by Destructiveness and Secretiveness.

No. 7. Destructiveness is bounded north by Secretiveness and Acquisitiveness, south by the ear, east by Combativeness, and west by Alimentiveness.

No. 8. Alimentiveness is bounded north by Acquisitiveness, south by the cheek-bone, east by Destructiveness and the ear, and west by Calculation.

No. 9. Acquisitiveness is bounded north by Sublimity, south by Alimentiveness, east by Secretiveness, and west by Constructiveness.

No. 10. Secretiveness is bounded north by Cautiousness, south by Destructiveness, east by Combativeness, and west by Acquisitiveness.

No. 11. Cautiousness is bounded north by Approbativeness, south by Secretiveness, east by Adhesiveness and Concentrativeness, and west by Sublimity.

Give the name and boundary of organ No. 4. A. No. 5. No. 6. No. 7. No. 8. No. 9. No. 10. No. 11.

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No. 12. Approbativeness is bounded north by Self-Esteem, south by Cautiousness, east by Concentrativeness, and west by Conscientiousness.

No. 13. Self-Esteem is bounded north by Firmness, south by Concentrativeness, east and west by Approbativeness.

No. 14. Firmness is situated in the top of the head, between Veneration and Self-Esteem, east and west by Conscientiousness and Hope.

No. 15. Conscientiousness is bounded north by Firmness, south by Sublimity, east by Approbativeness, and west by Hope.

No. 16. Hope is bounded north by Veneration, south by Sublimity, east by Conscientiousness, and west by Marvellousness.

No. 17. Marvellousness is bounded north by Veneration, south by Ideality, east by Hope, and west by Imitation.

No. 18. Veneration is bounded north by Firmness, south by Benevolence, east and west by Hope and Marvellousness.

No. 19. Benevolence is situated between Veneration and Human Nature, east and west by Imitation.

No. 20. Constructiveness is bounded north by Ideality, south by the temple, east by Acquisitiveness, and west by Tune and Mirthfulness.

No. 21. Ideality is bounded north by Imitation and Marvellousness, south by Constructiveness, east by Sublimity, and west by Mirthfulness.

B. Sublimity is bounded north by Conscientiousness,

Give the name and boundary of organ No. 12. No. 13. No. 14. No. 15. No. 16. No. 17. No. 18. No. 19. No. 20. No. 21. B.

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south by Acquisitiveness, east by Cautiousness, and west by Ideality.

No. 22. IMITATION is bounded north by Benevolence south by Mirthfulness and Ideality, east by Marvellousness, and west by Suavity.

No. 23. MIRTHFULNESS is bounded north by Imitation, south by Time, east by Constructiveness, and west by Causality.

No. 24. INDIVIDUALITY is bounded north by Eventuality, south by the root of the nose, east and west by Size.

No. 25. FORM is bounded north by Individuality, south by the nose, east by Size, and west by Individuality.

No. 26. SIZE is bounded north by Locality, south by the corner of the eye, east by Weight, and west by Form.

No. 27. WEIGHT is bounded north by Locality, south by the eye, east by Color, and west by Size.

No. 28. COLOR is bounded north by Time, south by the centre of the eye, east by Order, and west by Weight.

No. 29. ORDER is bounded north by Time and Tune, south by the corner of the eye, east by Calculation, and west by Color.

No. 30. CALCULATION is bounded north by Tune, south by the cheek-bone, east by Alimentiveness, and west by Order and the eye.

No. 31. LOCALITY is bounded north by Causality, south by Size and Weight, east by Time, and west by Eventuality.

Give the name and boundary of organ No. 22. No. 23. No. 24 No. 25. No. 26. No. 27. No. 28. No. 29. No. 30. No. 31.

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No. 32. EVENTUALITY is bounded north by Comparison, south by Individuality, east and west by Locality.

No. 33. TIME is bounded north by Mirthfulnsss, south by Color and Order, east by Tune, and west by Locality.

No. 34. TUNE is bounded north by Mirthfulness, south by Calculation and Order, east by Constructiveness, and west by Time.

No. 35. LANGUAGE is bounded north by the Perceptive Faculties, south by the cheek, east by Calculation, and west by Form.

No. 36. CAUSALITY is bounded north by Suavity, south by Locality, east by Mirthfulness, and west by Comparison.

No. 37. COMPARISON is bounded north by Human Nature, south by Eventuality, east and west by Causality.

D. SUAVITY is bounded north by Imitation, south by Causality, east by Mirthfulness, and west by Human Nature.

C. HUMAN NATURE is bounded north by Benevolence, south by Comparison, east and west by Suavity.

DOMESTIC PROPENSITIES, as a class, are bounded north by the Selfish Sentiments, south by the neck, east and west by the Selfish Propensities.

SELFISH PROPENSITIES are bounded north by the Selfish and Semi-Intellectual Sentiments, south by the ear, east by the Semi-Intellectual Sentiments, and west by the Domestic Propensities.

SELFISH SENTIMENTS are bounded north by the Moral

Give the name and boundary of organ No. 32. No. 33. No. 34 No. 35. No. 36. No. 37. D. C. Bound the Domestic Propensities The Selfish Propensities. The Selfish Sentiments.

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Sentiments, south by the Selfish Propensities, east and west by the Semi-Intellectual Sentiments.

Moral Sentiments occupy the range of organs on the top of the head, and are bounded south by the Semi-Intellectual Sentiments, east by the Intellectual Faculties, and west by the Selfish Sentiments.

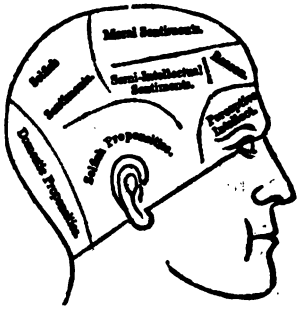
Semi-Intellectual Sentiments are bounded north by the Moral Sentiments, east by the Intellectual Faculties, south and west by the Selfish Propensities and Selfish Sentiments.

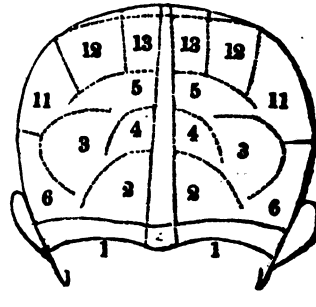
Perceptive, Observing Faculties are bounded north by the Reasoning Faculties, south by the face, east and west by the Selfish Propensities and Semi-Intellectual Sentiments.

Reasoning Intellect is bounded north by the Moral Sentiments, south by Perceptive Intellect, east and west by the Semi-Intellectual Sentiments.

Bound the Moral Sentiments. The Semi-Intellectual Sentiments. The Perceptive Faculties. The Reasoning Intellect.

LOCATION AND CLASSIFICATION OF THE FACULTIES.





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CHAPTER X.

HARMONY OF THE ORGANS.

1. As I have frequently remarked, one organ scarcely ever acts, or is exercised, alone. On this account, it is much more difficult to analyze character, and find out the real motive of action. We will suppose an instance, and will imagine the organs capable of speech; or we will personify them—that is, invest them with life.

2. Said Alimentiveness one day, I am hungry, I must *get* something to eat. What is that, cried out Acquisitiveness, if you intend to *get* something you will require *my* assistance, for *getting* is *my* business. But what do you wish? I would like some squirrels and deer, let us go to the woods and kill them. Stop one moment, spoke Destructiveness, in a grum voice; it will be useless to go anywhere without *me*, if there is any *killing* to be done, for I am the one to do that.

3. As Destructiveness roused himself from his couch, he disturbed his next neighbor, Combativeness. Ha!

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1. How do all the organs act? What will we imagine the organs to be? 2. What was the conversation of Alimentiveness and Acquisitiveness? Who spoke next? 3. Whom did he disturb, and what was the effect?

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said the latter, you intend to go into the woods to shoot deer; let *me* accompany you, to inspire you with *true* courage; for, if you should leave *me* at home, you would very soon be frightened by the very game you wish to catch. Well, said Secretiveness, looking out of the corner of his eye, if you think of *catching* anything, you must take *me* with you; because both squirrels and deer are very shy and cunning, and, in order to succeed, *you* must be cunning also; for, if they see you too soon, they will run away before you have time to shoot them.

4. Then if you intend to *shoot* something, said Cautiousness, you will find *my presence* necessary to assist you, for without my aid you might do as Mr. F. did a few days since; by not securing my advice and services, he put his bullet in first, and while he was trying to fire his gun, his game ran away; or you might do as Mr. G., who put in so much powder that the barrel of his gun burst, and killed *him* instead of the *game;* therefore, if you wish to be *sure* and *safe*, you must add *me* to your company. Firmness, who was more bold and decided than either or all of them, spoke, and said, you may all go together, but if you *leave me* at home, you will accomplish nothing; you will be discouraged before you get half the way, and will give up the chase and return. But if I go as your pilot, I will insure you success.

5. You can now see, children, that all these faculties must act in concert, beside many others that I could mention, to gratify only one thing, or organ, as Ali-

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3. What did Secretiveness say? 4. What did Cautiousness say? What remarks did Firmness make? What was his character? 5. What is said of all these faculties?

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mentiveness. And it is so of every important thing to be done. These faculties are more or less active, and consequently exert more or less influence on the character. But, although these different organs are very important and necessary, yet *they* are not sufficient *alone*. They depend much on the healthy state of the body, or the TEMPERAMENTS.

CHAPTER XI.

TEMPERAMENTS.

1. As there are different qualities of brain, and differently shaped heads, so there is a great diversity in the bodies of different individuals; and, as I have previously told you, the state of the body affects the vigor and activity of the mind.

2. We see, then, that the activity of the mind depends, in a great degree, on the development of a good body. There are three conditions of the body which are called TEMPERAMENTS. These depend on the constitution of different parts of the body. The first is called the

VITAL TEMPERAMENT.

1. THE Vital or Sanguine Temperament is predominant, when those organs which supply life or vitality are very large and active; as the heart, lungs, stomach,

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5. Are the organs *only* necessary? On what do they depend? 1. In what are there great differences? How does the body affect the mind? 2. How many temperaments are there? On what do they depend?

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etc. It gives a fulness and roundness to the body; the cheeks are usually full, plump, and fleshy; the shoulders

are broad, the chest is full, the pulse strong, the base of the brain and face large. Persons with this temperament have blue eyes, fair complexion, light hair, and a fresh and ruddy countenance.

2. They enjoy life, are very fond of the open air, are generally healthy, and have a strong and hardy constitution. They are not fond of hard work, or great mental labor; but like action and exercise, and are

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1. When is the Vital Temperament predominant? What is the appearance, size, etc., of the individual?

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generally good-natured, kind affectionate, and sympathizing, and, with proper care, live to a good old age. When the Vital Temperament becomes diseased, it is called the Lymphatic; then, the person is sluggish, indolent, inactive, and the brain is feeble in action, the skin is soft, and muscles weak.

MOTIVE TEMPERAMENT.

1. Those persons in whom the Motive or Muscular Temperaments predominate, have black hair, dark skin

2. What constitutes their enjoyments, and what is their disposition? What is said of the diseased Vital Temperaments?

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hard bones, strong muscles, large joints, and a moderate degree of fulness and plumpness to the body. All that belong to the framework of the body, of which I have previously spoken, are fully developed. They have a squareness of body, and high cheek-bones.

2. This temperament, or condition of the body, gives hardiness and endurance, a love of exercise and hard work. They have real energy of character, and generally accomplish what they undertake. Those who have soft bones and muscles may love to do *some* kinds of work, but they cannot endure much fatigue or excessive labor.

MENTAL TEMPERAMENT.

1. The Motive and Vital Temperaments depend much on the *body*, and their strength depends on the *strength* of the body; but the Nervous or Mental Temperament depends on the exercise of the brain and nerves. If these predominate, we say a person has the Mental or Nervous Temperament. The signs of this organization are light, fine hair, a thin, clear, and delicate skin, a small frame, a small chest, sparkling eyes, and quickness of motion. The brain and nervous system are very active, and lead the person to think, read, study, and acquire knowledge.

2. When all the Temperaments are happily blended, they give the possessor a great degree of physical and

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1. What are the peculiarities of the Motive Temperament? 2. What does it give? Is the same true of those who have soft bones and muscles? 1. How does the Mental Temperament differ from the others? What are its signs or peculiarities? 2. What are the advantages of a balance of the Temperaments?

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mental power, great activity, great power of thought and feeling, and dispose a person to engage in intellectual pursuits, or in some active business, which

requires mental and physical strength. If one of these be wanting, there will be a want of balance to the mind, as for example,—

3. Suppose a person has a very large and active Mental Temperament, with small Vital or Motive; he might be very intellectual, and fond of literary pursuits, but would not have strength of body to carry out his plans. This is the reason why those persons who are very smart, bright, and precocious, and mature early,

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3. Illustrate the want of balance? What often follows from this?

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die young; because all their vitality is expended through their brain and nervous system.

4. If a person have large Vital and Motive Temperaments, with very small Mental, he will have a great many animal wants and desires; his thoughts will be confined mostly to his body, and he will care very little for the cultivation of his mind. He will not spend his time in hard study and thought, but will be most anxious to know "what he shall eat, and wherewithal he shall be clothed."

5. Children, I wish you to observe every one whom you see, and try whether you can tell what their Temperaments are. You can understand me when I tell you that there is a diffierence between a large, fleshy man, and one who is tall, slim, and pale, as well as you can understand that there is a difference between a large and small apple, or between a pear, peach, and orange. This difference in individuals, is the difference in their Temperament. I do not suppose or think that you will always decide correctly; for older persons, who have had much experience, fail frequently. It will teach you, however, to observe and learn.

6. But the Temperaments *alone*, are not sufficient for the full development of the organs. They might be *well-balanced;* yet, if we had no EXTERNAL SENSES, they would be useless, as much as a piece of money is useless when it lies in a heap of rubbish, or a beautiful diamond, when imbedded in the rock. I will next explain to you, briefly, what I *mean* by the external senses.

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4. What will result from the union of large Vital and Motive, with small Mental? 5. What should children do? What can they understand? What is this difference? Why will *children* fail in this? What good will it do? 6. What is necessary beside the Temperaments? Why?

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CHAPTER XII.

THE EXTERNAL SENSES.

THERE are five Senses; viz., seeing, hearing, tasting, smelling, and feeling.

SIGHT.

The eye is the organ of sight, and is a perfect and beautiful apparatus. I have not time to tell you all about its construction, or of the many coats by which it is surrounded. That it is very delicate, and of the greatest importance, is evident from the manner in which it is protected. We see that it is situated in a socket of hard bone, and has a lid that shuts down over it when we sleep, to prevent the particles of dust from getting into it. The eyelashes serve the same purpose when we are awake.

2. A great number of nerves lead to the eye; but only one assists in giving light, which is called the *optic* nerve. The eyes of some animals are so situated that they can turn them in only *one* direction: but there are numerous muscles in the human eye—one to turn it upward, another draws it downward, another enables us to turn the eye around, or to the side. Hence we perceive what advantages we have over many animals.

3. The tears are secreted by the lachrymal gland,

What is the subject of chapter twelfth? What are the different senses? 1. What is the eye? What is said of it? From what is its importance evident? Explain the wise provision. 2. What nerve assists sight? How do the eyes of animals differ from those of human beings?

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just behind the eye, and serve to moisten it. Sometimes, when persons go out from a lighted room in the evening, it will at first appear to be very dark, but after they have been out a short time, it appears to become lighter I will tell you the reason of this—as there can be no effect without its cause—I will first tell you, however, that that part which makes one person have blue eyes, another black, etc., is called the iris; there is an opening in this *iris* called the *pupil*, through which all the rays of light pass to the back part of the eye, called the *retina*, where a little image is formed of every object which we see. This opening in the iris has the power of contracting or shutting, and expanding or opening.

4. When we are in a room where there is much light, the opening is contracted, and if we go out suddenly into a dark room, the iris requires a little time to expand sufficiently to enable it to receive all the rays of light. If we go from a dark room into the light one, our eyes experience an unpleasant sensation, because too many rays of light pass through the iris, which always expands in the dark.

5. The organ of sight contributes much to our happiness, and is of as much assistance to us as the windows are in a house. Without it, we are deprived of many enjoyments, and cannot use a number of organs of the brain. These, situated around the eyes, are the servants of the eye, and without their master, are comparatively useless.

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3. For what are the tears? What is true in regard to our going from a lighted room into the dark? What is the iris? What is the pupil? What is its use? What is the purpose of the retina? 4. Explain why it is unpleasant for us to go from a dark room to a lighted one, and the opposite. 5. What is said of the organ of sight?

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HEARING.

1. The ear is the organ of hearing. It has many divisions, which I am afraid you would not remember if I should tell you. The nerve which conveys impressions to the brain is called the *auditory*. The ear has no opening into the brain, so that insects which sometimes find their way into the ear, could not—as many suppose—crawl into the head, although they frequently produce considerable pain.

2. By *sound* is meant vibrations from the body, which reach the ear. When persons speak to us, they produce a change or motion in the air, and this change is called the vibration; the air which is moved, or the vibration, falls on the membrane of our ear, thence it is conveyed rapidly to the brain, and this we call sound.

3. That air is necessary for the passage of sound, has been proved by removing all the air from a glass dish by means of the air-pump, and then by putting a bell into the dish, and trying to ring it. It produces no sound, or there is nothing transmitted to our ears. Some have supposed that if there were no ear there would be no sound. For instance, if a basket of eggs should fall from a high hill, when no person was there, it has been been thought that no sound would be produced.

4. Sound travels at the rate of eleven hundred and forty-two feet in a second; so that if the sense of hearing be not impaired, we can tell the approach of a

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1. What is the organ of hearing? What is its nerve? Can any insects crawl into the head? Why not? 2. What is sound? Illustrate this. 3. How do we know that air is necessary for sound? What have some supposed? Give an example. 4. What is the speed of sound? What can we ascertain?

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thunder-storm very accurately. We always see the flash of lightning first, and if we count the number of seconds between the flash and the report, we shall be able to ascertain the distance of the thunder-cloud. If it were two seconds, then twice eleven hundred and forty-two feet would be the distance; and so on, of any length of time.

5. Indians can hear at a great distance, by putting their ear on the ground. They can tell the approach of an enemy or army, although they may be many miles distant.

6. The sense of hearing is a source of great usefulness and enjoyment; for it is not only pleasant to see the faces of our friends, but it is also agreeable to hear the voices of those whom we love; to hold sweet converse with them, and to enjoy the harmony and melody with which all nature is filled.

TASTE.

1. The sense of taste lies in the mucous covering of the lips, tongue, cheeks, and throat. There are little substances on the tongue which are called papillæ, which assist us very much, and contribute greatly to our pleasure when we eat. Some suppose that the gratification produced by food is somewhat dependent on the nerves in our teeth. It is well that there are pleasures connected with eating; for if there were none, we should

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4. In what way can we ascertain this? Give the example. 5. What is said of the hearing of Indians? 6. Of what is this sense a source, and why? 1. Where is the sense of taste situated? What contributes to our pleasure in eating? What advantage is there in the pleasures of this sense?

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not take sufficient nourishment to support digestion and the growth of our body. If we had no taste, then Alimentiveness could not be gratified, and there would be no use for that organ.

2. This organ is more acute and active in children, who gradually lose their strong relish for food as they become older. It is very often a complaint with the aged, that they have not good appetites. The taste of children is natural, and, if not perverted, would never seek stimulants of any kind. This perversion of the appetite is the great cause of the unhealthiness of children. The taste is somewhat dependent on the saliva, which you have learned is secreted in the mouth. This sense is not as active when there is not much of this liquid, as when it is more abundant.

3. Hunger and thirst are desires or sensations in the nerves of the stomach and throat, for the purpose of warning us that we must take nourishment. When the food has been properly digested, and the stomach becomes empty, then we feel a craving desire for food, unless the coats of the stomach be diseased, or have lost their power. Take care of your sense of taste.

SMELL.

1. The sense of smell is situated in the mucous membrane of the nose. Impressions made on it are conveyed by the olfactory nerve to the brain. By means of it, animals which roam through the fields and meadows

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2. In whom is this most active? Does it continue? What is said of this organ in children, and its perversion? On what is taste dependent? 3. What are hunger and thirst? Explain. 1. Where is the sense of smell situated? What is the use of the olfactory nerve? What does this sense enable animals to do?

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can detect the difference between poisonous and noxious weeds, and plants pleasant and agreeable to the taste.

2. Animals have this sense quite largely developed. Some dogs are able to pursue game which is out of sight. They can detect the path of their master, and will often follow his track for miles. In Switzerland, where they have very heavy falls of snow, there is a particular kind of dog which the monks send out on very stormy nights to hunt for the poor travellers who are frequently bewildered by the snow, and are buried beneath it.

3. These dogs find them by *smelling*, and scratch away the snow, and guide them to the hospitable inns, where they are frequently revived after having been nearly dead from cold; or they will make known to those who send them that *their* assistance is required.

4. This sense is somewhat under the control of the will, for we can inhale the pleasant odors of the rose, or we can close our nostrils if an unpleasant odor be presented. The sense of smell, although inferior to the others, affords us much pleasure and enjoyment, which we should not have without it.

TOUCH.

1. The sense of feeling or touch is in the skin and mucous membranes. The difference between touch and feeling, is, that touch is limited to particular parts, mostly in the hand, while feeling extends over the body. If we puncture any part of it with a pin, we shall perceive

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2. How can dogs find game? What is a custom among the monks of Switzerland? 3. What assistance are the dogs? 4. In what way is this sense under the control of the will? What does it afford us? 1. Where is the sense of touch? What is the difference between touch and feeling?

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a sensation in the nerve of that part. I have described to you the different layers of the skin in volume one, and spoken of the nerves which surround these layers. By means of this sense, we are aware of the temperature of bodies around us with regard to their heat or cold.

2. I have given you a short sketch of the different senses, and you will perceive that *they* are the *only* means by which we gain a knowledge of the external world; and that without them we could not develop our minds to others. Hence we see that it is not only important that we have organs of the brain well balanced, but that we require temperaments to modify those organs; and that it is equally important that we have the external senses in a healthy condition.

3. In view of all that you have learned, what do you now intend to do, children? Will you heed all the previous lessons, reflect on them, improve yourselves, take care of your bodies and minds, that you may become useful and influential members of society? or will you "bury what talents you possess in the earth," forget my instructions, and live on from day to day without heeding my advice? Be careful when you decide, to decide correctly—for your own happiness, your present and future welfare, depend on your decision.

STRIVE TO BE GOOD—GREAT:

"Great, not like Cæsar, stained with blood,
But only great as you are good."

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1. What do we perceive by this sense? 2. What are the uses and advantages of the external senses? What things are very important? 3. Either of what two ways, or courses in life will all children pursue? In what should you be very careful? Why? What must you all strive to be?

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